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FORMERLY

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VOL. CXI., No. 24
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NEW YORK, SATURDAY, DECEMBER 13, 1919

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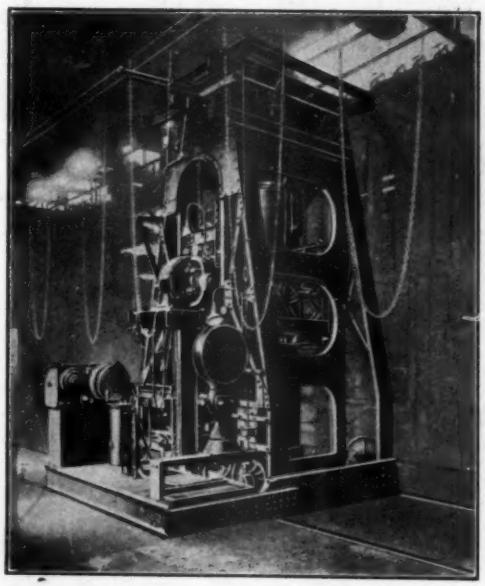

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A Campaign Based on Relatively Expensive Fixture to Bring Back to Gas Lighting Its Merited Prestige

Do Not Emphasize the Source of Illumination to as Great a Degree as They Do Good Lighting in Providence, R. I., Effort—How Prompt Installations Make Further Sales

By J. E. BULLARD

The weak point with a great many residential gas lighting campaigns lies in the fact that new lights cannot make an old fixture look up to date and attractive. It makes no difference how good the lights are, how attractive they are in themselves, the old fixture is likely to spoil the effect. As a matter of fact, the new lights may serve to exaggerate the unattractiveness of the old fixture.

It is extraordinary, however, how much more attractive a room can be made by the installation of a modern, well designed, efficient gas fixture. It does not matter so much what makes the fixture give the light as it does how that fixture looks.

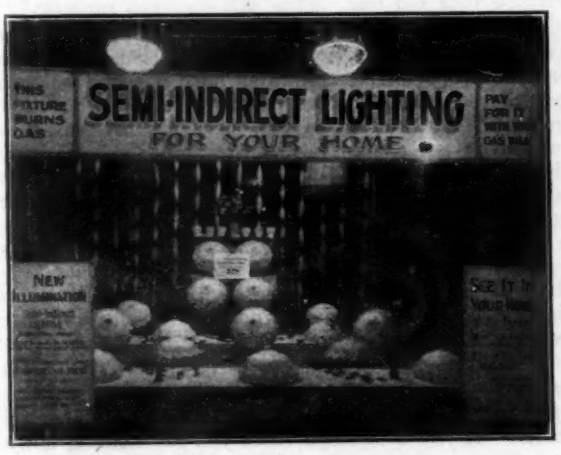
Lighting fixtures have probably had more to do with holding back gas lighting in the home than any other one thing. During the past generation people have progressed. When a family installed in a room a new modern cabinet phonograph, a player piano, an attractive rug upon a floor that had recently been refinished in hardwood, the old gas fixture that was installed in the days of carpets and open flame gas burners sort of convinces the members of that family that gas is old fashioned and that they ought to have the house wired for electricity.

Install a new, modern, artistic semi-indirect gas fixture in that room, however, and that family is convinced that the gas business has progressed along with the piano and the phonograph business. The Welsbach Company store at Providence, R. I., which is now under the management of Edward W. Coit, and the Providence Gas Company have agreed that this is the case.

On Nov. 3, a semi-indirect gas lighting campaign was launched in Providence. The newspaper advertising is appearing over the name of the Providence Gas Company, the gas company is collecting the installments for the fixtures with the gas bills, and both the gas company and the Welsbach Company are making displays in their store windows.

Lighting Appeal Almost Exclusively

The feature of this campaign is a good lighting appeal. In the seven columns by seven inches advertise-



DISPLAY WINDOW OF WELSBACH COMPANY IN THE SEMI-INDIRECT GAS LIGHTING CAMPAIGN LAUNCHED IN PROVIDENCE, R. I.

ments that are running in the newspapers, the word gas appears but three times. It is used once to tell the reader the kind of burner that is used to supply the light, once to tell the reader that it can be paid for with the gas bills and the third time it appears it is in

the name of the gas company. All of the rest of the advertisement is devoted to good lighting. The advantages of the illumination that results from the use of this semi-indirect fixture are brought out in the following words:

"Instead of glare, there's restful radiance; instead of nervous brilliancy a soothing relaxing cheerfulness; instead of sharp lights and dark shadows, a soft diffusion of light, most becoming to the complexions of the ladies, and comforting to the eyes." Those words "most becoming to the complexions of the ladies," are sure to have their effect.

The window display of the Welsbach Company contains nineteen bowls of the fixture which make up the main display and five complete fixtures which are hung from the ceiling, are connected with the gas supply and can be burned at night. The cards used feature good lighting rather than gas lighting and the price is made subordinate. A big card extending clear across the front of the window says in big letters on one line, "Semi-Indirect Lighting," while right below these words in smaller letters are the words, "For your home." At the left end of the card are the words, "This Fixture Burns Gas," and the right end carries the message, "Pay for It With Your Gas BILL."

At both of the front corners of the window are large cards. The one at the left of the window reads: "New illumination. Semi-Indirect Lighting is the other name. All over the country, it is the lighting of the hour, the most popular and up to date. No Glare—instead a restful radiance. No sharp lights and dark shadows but a soft, even diffusion. What a tremendous improvement it will make in the lighting and decorating of the home."

The card at the right reads: "See it in your home, at our expense. We will be glad to demonstrate this fixture in your home. Without any cost to you we will install it in any room you desire. Use it a week, and if not entirely satisfied, we will remove this fixture and replace your old one. This will cost you nothing."

It will be noted that the word "gas" is used but twice on all three of these signs. It is used once to tell the people that the fixtures burn gas and once to tell the people that they can pay for it with their gas bill. All the rest of the space has been used to talk about good lighting. The fixture is of a quality that backs up every statement that is made. It appeals to people of good taste. It is an ornament in any home so there is no need to make any excuse because it is a gas fixture. Rather the great advantages of using gas in such a fixture are pointed out without saying anything about gas. No glare, a restful radiance, no sharp lights and dark shadows but a soft even diffusion are peculiar to gas lighting.

The only place that the price is mentioned in this window is on a small card between four shades that are supported on steps near the background. This card reads: "If you wish to purchase you pay nothing down and $2 per month with and in addition to your next eleven gas bills. Price $22. Nothing down. Free installation."

This window has eighteen feet of glass frontage on the sidewalk and twelve feet of frontage in the doorway. The crepe paper and all other decorations used cost about $6.30. The total cost of the display, including cards, amounted to about $18. On account of the season of the year that the display was made, it was given a Hallowe'en atmosphere by means of colored paper streamers for a background. Colored crepe paper on the floor and black cats and foliage, dolls, etc., occupying the space between the bowls. Elevated on a set of steps that supported four bowls was placed a basket of flowers and on each side of this basket three small shades.

The window in the gas company display room did not feature so many fixtures, but did give them a home setting by using furniture. In addition to the two displays and the newspaper advertising seven salesmen were sent out to make a house-to-house canvass. The Welsbach Company takes care of this house-to-house canvass, handling it from their own store, but working on all of the leads that come into the gas company office. These men sold thirty-nine fixtures in three days.

Prompt Installations Speed Up Sales

These salesmen are paid a commission of $4 for each fixture. They carry photographs of the fixtures and also carry a fixture. They have the privilege of installing a fixture in any home on a week's trial, and all fixtures are installed within twenty-four hours from the time the order is taken. In some cases they are installed the same day.

Such prompt installations have had the result of very considerably speeding up sales. Practically every fixture placed on trial is sold and in most cases within a very few days or perhaps the next day after it is installed. It is this quick work of installing that is given the credit for many of these sales.

The enthusiasm aroused by the salesman for the fixture is not allowed to wane before the fixture is installed. There is no time for the customer to become impatient at delay. In these days when we all find it necessary to wait for a long time for so many things that we buy, this is appreciated far more than would be the case in ordinary times.

Mr. Coit has impressed upon his salesmen that this fixture will result in real benefit to those who buy it. It saves their eyes and adds to their comfort. He has also shown them that it is artistic and thoroughly up to date. In fact, the key words of the campaign might be said to be, beneficial, artistic and up to date.

The object throughout has been to sell better lighting than to emphasize gas lighting to too great an extent. It has been realized that just as soon as people begin to connect gas with good lighting they will begin to prefer gas for lighting purposes. The real problem is to show people what really good lighting means. In the fixture used in this campaign the instrument for doing this is furnished.

This campaign has many advantages over residential small burner campaigns. These fixtures will be placed in the best rooms in the house. They will not be confined to the kitchen or some other room in the house where they will not be seen by visitors. They will be placed where the most people can see them and will comment upon them. Therefore, the fixtures will advertise themselves and each fixture installed will sell other fixtures.

Since it is not so easy to experiment with these fixtures as it is with single burners, the people who buy them are far more likely to leave them alone and give them a chance to show good results.

The fixture improves the appearance of any room in

THE SAME WINDOW OF THE WELSBACH COMPANY VIEWED FROM THE FRONTAGE IN THE DOORWAY

which it is placed. It does not as is the case where one burner is placed upon an old-fashioned four-arm fixture make things look unbalanced and find itself eventually replaced by something else.

This is a fixture which there is every reason to believe will stay put and which will advertise gas lighting. The results already secured show that people appreciate it better than they have single burners. There is every reason to believe that this campaign is along the right lines to increase the interest of gas consumers in gas lighting and to make them appreciate the special advantages of good gas lighting.

To Catch Up With Construction Programs Back from Three to Five Years Gas Industry Will Require Millions of New Investments Within Near Future

P. E. Nicholls of Opinion that Former Standard of Returns on Investment Will Not Attract the Money Needed to Adequately Supply the Constantly Growing Demand for Service.

"High Cost of Living," is the phrase on the nation's tongue to-day. One hears it at every turn from those who buy and those who sell. Gas men, as well as others, have learned to face the stern fact of increased and increasing costs of commodities, whether labor or materials, that they use. Which of us has not learned to think in terms of 100 per cent increase over the pre-war price level?

The cry has gone up among public utility men from one end of the country to the other for higher rates. Their argument—and ours too—predicts always financial ruin for their companies unless the earnings increase in proportion to the demands of men and materials. But the commodity that utilities must be able to buy before they can use men and materials is the one that is least appreciated when a plea for rate increases is being considered. This commodity is *money*, declared P. E. Nicholls, vice-president and general manager of the Galveston Gas Company, in a paper before the Texas Gas Association in recent convention. Money invested in the securities that utilities sell in order to grow, must be purchased in the open market in the same manner as are all other goods. Public service corporations face to-day a greater need for new money than at any time in their history. They cannot increase the selling price of their wares as can the merchants; they must make the best of an inadequate yet fixed price, and meet rising costs just the same. The deficit must be met, and they go to the money dealer only to be confronted with the fact that he too has increased the price of his wares. He earns his living from the profits of the sale of his money, hence he faces the problem of the cost of living just as any dealer does.

The Real Source

The bankers and brokers who take the securities that we offer as payment for money borrowed are but the agents of the real money dealers. The greater portion of the capital comes from retired business men, insurance companies, or widows investing their insurance. Each of you can think of many people who depend solely on the income of an accumulated fortune of twenty-five, fifty, or one hundred thousand dollars for their living. In order to keep abreast of the rising costs, they must bring a higher rate of interest.

The effect of this on us is that instead of being able to dispose of long term bonds bearing 5 or 6 per cent interest at par, or at a premium, we must now offer these bonds at much below par, and add to this a bonus or other inducement which will make the bonds attractive to the money dealers. One may well ask if this condition is a temporary or a permanent one. Can we hope for a return of pre-war prices? The answer is stated in no uncertain terms by Dr. Irving Fisher, of Yale University, in his speech before the Conference of Governors and Mayors at the White House last March. This is what he says:

"Business men should fact the facts. To talk reverently of 1913-14 prices is to speak of a dead language to-day. The buyers of the country, since the armistice, have made an unexampled attack upon prices through their waiting attitude, and yet price recessions have been insignificant. The reason is that we are on a new high-price level, which will be found a stubborn reality. Business men are going to find out that the clever man is not the man who waits, but the one who finds out the new price facts and acts accordingly."

Six Per Cent Money No Longer Available

This price level is and will be reflected as certainly in the price of money as it is in the price of everything else. One official has aptly said: "Six per cent money for public utilities is just about as plentiful as $2 labor or 10 cent cotton," and this condition will prevail for years to come.

The rate of interest that must be paid on an obligation is determined largely by the strength or earning power of the organization back of the obligation. In pre-war times, public service corporations had little difficulty in securing 5 and 6 per cent money, for their offerings were considered to be among the safest obtainable, and hence were eagerly sought by insurance and trust companies or other organizations whose funds must be invested in an absolutely secure manner. At this same time, our Government was issuing bonds at

yields of 2 and 3 per cent and selling them without effort. But consider the situation to-day. We are familiar with the Liberty Loan campaigns of last year. Bonds—the safest in the world—bearing as high as 4¼ per cent interest and having attractive tax free features, were sold only after the most strenuous campaigns in which patriotism and not financing was appealed to. Securities placed in that manner will not be held by the original purchasers, but will be placed on the market at less than par. Bonds of any of the Liberty issues may be purchased in any amount for 95 to 98. This has created unprecedented competition in the money market.

How then can gas companies market their securities at any price? Struggling against unkind and short-sighted regulating bodies who deny the companies the privilege of selling their gas at rates that will allow them to earn a reasonable amount on the investment, makes the outlook for financial relief through the launching of bond issues a gloomy one indeed.

New money for the utilities must be had, and it is only through a long and arduous campaign of public enlightenment that we can hope to get our case an honest and unbiased hearing. If, as the economists state, the dollar of to-day is worth in purchasing power only 35 cents of the money of 1896, what chance have utilities to live, much less grow, with an allowance of a 6 per cent or less earning on the money invested? The fair return on utility investments cannot remain at the old 6 or 8 per cent figure. Capital cannot be attracted to buy our bonds, as safe as they are, at such a figure, and without capital we cannot exist.

We must put up a concerted and unbroken front in our fight for higher rates, and this means rates high enough to earn, on the money invested, a return in keeping with the new price level. We must be able to compete—and compete strongly—with other corporations, regulated and unregulated, in order to attract money, and the only way to attract it is to pay for it.

Infuse a New Element Into Rate Pleas

Get this new viewpoint of the rate increase situation. Infuse into your plea for higher rates this money phase of the situation. Awake your public and your regulating bodies to the plain fact that invested capital must earn more or it ceases to invest. It may sound revolutionary; it may seem a stupendous task to turn the tide of fixed public opinion, but it must be done, for as long as the utilities are throttled by a public which does not understand or misunderstands the system by which our companies are financed, we can never hope to meet the grave investment conditions prevailing to-day. Understanding this, the people will realize that the rates *must* be raised, not in a miserly fashion in order to keep the wolf from the gas companies' doors at pay day, but raised so as to allow us to pay our debts and then pay our backers whose money we operate on, and pay them adequately.

I have recently received a letter from E. K. Hall, vice-president of the Electric Bond and Share Company, which bears directly on this subject. He says:

"For years regulatory authorities have been trying to determine a fair rate of return for utility investment. Findings have varied in different sections of the country and as between different utilities, but generally the rate has been determined as ranging between 6 and 8 per cent.

"No rate of return is adequate which will not attract the necessary new investment to provide the extension of facilities required to adequately supply the constantly growing public demand for more service. New investments cannot be obtained unless utilities can assure investors a rate of return commensurate with that assured by other enterprises.

"Ten years ago public utility bonds in the United States were issued readily at prices yielding 5 per cent. To-day bonds of the same companies are placed with difficulty at prices yielding up to 7½ per cent.

"Public utilities buy money in the same way they buy steel, rails, copper wire, coal, oil and labor. They pay the market price. Furthermore, the commissions often, and the public generally, fail to realize the rate of yield to the investor does not constitute the entire cost of money to the company.

"The investment banker who purchases the issue and places the securities must be paid for his services just as certainly as the manufacturer who sells steel rails or the dealer who delivers coal. This charge depends upon the difficulty of placing the securities with the ultimate investor and in these days of short term financing it may properly mount to 1, 2 or even 3 per cent of the total issue.

"It is common knowledge that the cost of money to one public utility for financing a maturing bond issue two years ago amounted to over 12 per cent.

"Under money market conditions now existing a rate of return on a public utility investment of from 6 to 8 per cent is not only inadequate to attract the necessary new investment, but it is insufficient to retain the investment of those security holders who are already in, if they are in a position, as many of them are, to take a temporary loss in order to transfer their funds to a competitive unregulated enterprise which promises a higher rate of return for an indefinite period in the future.

"The problems of utility financing will not be solved with the signing of the Peace Treaty. Every company is confronted with the necessity of catching up with a constructive program which has been postponed for from three to five years and millions of dollars of new investment must be obtained in the early future or the service and therefore the public must suffer.

"The only practical program for the reduction of the present price level rests upon increased production of goods and commodities and nothing is more essential to this program than adequate power and transportation facilities. In the case of the power and light companies particularly the task is not so much to rehabilitate a deteriorated service as it is to extend its facilities confidently and generously for enlarged industrial service.

"The public utility business was initiated and developed with a more or less rigid rate schedule in an era of falling prices. Within the last decade the world has experienced the most revolutionary rise in prices in modern history. Never before in any period of advancing prices has any industry or group of industries been subjected to the rigid system of rate regulation that the utilities are now struggling to cope with.

"The public is rapidly coming to a realization of the advances that have been sustained in commodity prices because they have to buy commodities for themselves, but they never have appreciated the financing problems of a public utility company and they do not compre-

(*Continued on page* 561.)

Gas Has Various Uses in Browning and Bluing of Metals

The Gas Installations a Simple Matter Not Beyond the Average Gas Man of Common Sense, Either in Selling or Placing

By GILBERT C. SHADWELL

In browning copper it is important to scour the metal brightly first by the aid of fine grass paper or in some similar manner. The metal is then heated. If there is much of the work to be performed, a conveyor oven is the best kind of a proposition to employ, but any kind of an oven used for japanning and similar purposes is quite satisfactory. When heated, the articles are brushed over with a solution prepared as follows: Copper acetate (cryst.), 5 per cent; ammonium chloride, 7 per cent; acetic acid diluted, 3 per cent; distilled water (derivable from a gas-fired water still), 85 per cent. After this they rub with one part wax cut in four parts of turpentine.

Browning of Iron and Steel

The old method of browning iron and steel was to dissolve in four parts of water, two parts of crystallized iron chloride, two parts of antimony chloride and one part of gallic acid. This is slightly warmed in a pot over an industrial stove. The temperature should not go above 90 deg. Fahr., or 100 deg. Fahr., at most. This solution is then applied with a sponge or cloth to the article and it is then allowed to dry. This process is repeated any number of times according to the depth of color which it is desired to produce. They then wash with water and dry and finally rub the articles over with boiled linseed oil. The metal thus receives a brown tint and resists moisture. The antimony chloride should be as little acid as possible.

The second method is the one more commonly used to-day and was originally patented in Germany. The system of operation depends on the principle of Electro-Metallurgy and is as follows: The goods to be browned form the anode of the bath which consists of distilled water. The cathode is formed by the vessel which contains the water if it is made of iron; otherwise a plate of iron, copper or carbon is placed in this bath. The best thing to use is a regular gas-fired cauldron furnace or tank furnace with a cast iron kettle or a steel tank respectively, however as will be seen later. The water is heated up and must be kept at a temperature of between 160 deg. to 180 deg. Fahr., and the voltage at which the current is passed must be sufficiently high to decompose the water into its component elements (i. e., $2H_2O - 2H + O_2$). The oxygen (O_2) which is thus given off at the anode forms in an hour or two, a layer of the black oxide of iron (a combination of ferric oxide) which apparently polishes up very well. Steel is said to give the best results; in the case of cast and wrought iron, the oxide of iron formed separates as a powder and it is necessary to use distilled water in order to obtain a layer which will adhere to the goods.

Some years ago the U. S. Ordnance Manual gave details for the browning of guns and the writer understands that the same process can be applied with splendid results to commercial articles and is, in fact, adapted in that way. They take: Spirits of wine, 1½ parts; tincture of iron, 1½ parts; corrosive sublimate, 1½ parts; sweet spirits of niter, 1½ parts; blue vitriol, 1 part; nitric acid, ¾ of a part (by weight). They mix these and dissolve in 32 parts of water by warming slightly over a burner. The mixture is then stored in a glass container. The mode of using was to clean the barrel with caustic soda water in order to remove all grease and oil, but in commercial use it should be carried out by means of a lye bath heated to about 150 deg. Fahr. The surface could be cleaned of all stains and marks by emery paper or cloth so as to produce an even bright surface for the acid to act upon. The liquid was then applied with a sponge and the article left for six hours and then scratch brushed. The process had to be repeated depending on the color depth wanted. Finally they washed it in boiling water, dried quickly and wiped with boiled linseed oil or varnished with shellac. The adaptation of this to the browning of door plates, door knobs and scores of hardware articles is an obviously simple matter.

The only other method known to the writer consists of: Black brimstone, ½ oz.; blue vitriol, 1 oz.; corrosive sublimate, ½ oz.; tincture of steel or the unmedicated tincture of iron, 1½ oz.; copperas, ½ oz.; nitric acid, 2 drams; spirits of niter, 1½ oz.; to this add three parts of distilled water and bottle for use.

Bluing of Metals

The usual bluing processes are derived by heating, but there is a blue finish sometimes used in which the metal itself is not heated although the liquid employed is. In this case they clean every part carefully and apply nitric acid, one part, diluted with ten parts of water until a blue film is produced on the surface. It is then washed in a tank heated by gas and filled with water; afterwards the goods dry by their own heat. They are then wiped with linseed oil or shellac.

To color brass blue like steel, the brass is laid in a leaden vessel, containing hydrochloric acid, a little arsenic, until it assumes iridescent tints. After this it is removed, washed and lacquered. Goods treated in this way are then usually lacquered and baked in an ordinary lacquering oven at a temperature of from 175 deg. Fahr., to 350 or 400 deg. Fahr., depending upon the lacquer, the finish and other details.

Bluing of Steel

The articles to be blued should have their surfaces

cleaned and polished. They may then be heated in a rotating drum at a temperature of from 500 to 600 deg. Fahr., according to the depth of color required. (See Fig. 1.) It is not necessary to watch the temperature, but simply to examine the articles from time to time to see when cooled in the air they assume the proper color. They should then be immediately removed and the operation is then completed.

There is another method in vogue which is carried out as follows: They scour the steel with a small quantity of strong aqueous solution of sal soda or by dipping in such a solution heated in a tank furnace. They then rinse in another kettle containing hot water and then brush over with a solution made up of the following proportions: One-quarter oz. chloride of iron dissolved in each 5 oz. of water. They then let it dry. They then apply in the same manner a solution made of 1/5 oz. of pyrogallic acid to each ounce of water. It is then dried and brushed. Such a coating, however, does not wear well without lacquering so that gas is again used for that process. The blue oxide is sometimes imitated by mixing a thin alcoholic solution of shellac varnish colored with aniline blue or what is sometimes called Prussian blue, but this is readily detected and is poor practice because it does not last any time. They also sometimes use a solution of potassium ferrocyanide and water in the proportion of one part to 200 of the water and another solution of 1 to 200 of ferrochloride. The two solutions are mixed and used as a dip, but they also are not good. Apparently one of the better chemical processes consist of antimony trichloride, 25 parts; nitric acid, 25 parts, and hydrochloric acid, 50 parts. They rub the steel with this and polish with a piece of green oak until the proper color is obtained. Gas men will readily see the indifference of such a process, however, and ought to be able to displace it with gas.

Bluing Revolvers, Etc.

Generally speaking, there are three main methods pursued in the bluing of revolvers, pistols, etc. They are: (1), heating; (2), staining, and (3), pack heating. In the first case, the bluing is effected by heating evenly in a muffle until the desired blue color is obtained. The parts, of course, must first of all be cleaned and brightened with emery cloth, leaving no marks of grease or dirt upon the metal when the bluing takes place and then allowed to cool in the air. In years gone by it required considerable experience to obtain an even clear blue but with a good gas furnace (such as in Fig. 2) the matter is relatively simple, owing to the evenness of heating.

In the second case, for bluing gun barrels, etc., by staining they dissolve in one quart of water made warm (say 100 deg. Fahr.) the following: 4½ oz. hyposulphite of soda and in another quart of water, 1¼ oz. acetate of lead. They mix the two solutions and bring to a boil either in a porcelain dish or stone pot, but, better, in a gas-fired cauldron furnace with an enameled kettle; but care must be taken to heat it slowly at first or the enamel may be permanently damaged. The barrel must next be cleaned free from grease, oil, varnish, etc. It is then warmed and smeared with the hot solution just spoken of. If the work is done in batches it is best to warm them in an oven and for this purpose a conveyor type is the best. For in this way the parts to be blued can be fed in at one end, warmed as they pass through and smeared with the solution as they emerge from the other end. This can be done by using a piece of sponge tied to a short handle or stick. The process is sometimes repeated, but when finally the color has developed, the parts are washed in warm water, dried and finished with lacquer or boiled linseed oil. The washing is best done by putting them in a perforated basket (such as is supplied with a soda kettle) and then immersing the whole batch—basket and all—in the soda kettle. When dumped they usually dry from their heat.

The third method is the most interesting and probably the most effective. Sometimes the steel is heated to a light gray color allowed to cool and reheated until blue. The rules to be followed in this case are as follows:

1.—Get as high a polish as possible on the part you want to blue.

2.—Get an iron box made of ordinary sheet iron. If for the chamber only, say about 6 in. square. There is no need for rivets as it can be just seamed or doubled together.

3.—Pound up some wood charcoal and fill the box with it. Then put the box in a furnace at almost 800 deg. Fahr., and stir up the charcoal a little until it ignites a little. The chambers may now be put in the box of partly ignited charcoal. It should be put in about midway so as to have as much heat at the bottom as at top and sides.

4.—Next it is desirable to have handy a handful of dried powdered lime and a piece of tow or cotton waste; also a pair of tongs (small) or other means of lifting the article out of the box. When the article is placed in the box it must be again placed in the furnace and attention must be paid to it strictly. It should be lifted out about every ten minutes and rubbed with the tow dipped in the lime. Then as gently as possible, it must be put back into the charcoal. Neither the furnace nor the charcoal must get too hot and for this reason an atmospheric furnace is probably the best. If the box gets too hot it should be removed temporarily from the furnace and set aside for a few moments but replaced if necessary.

5.—It will be noticed that the steel part soon gets a purple color and then blue. It is rather tempting to leave it at this bright blue, but it should not be done because this first blue is hardly any good; at least it is no good for when the article has to be rubbed and cleaned.

The work should be continued; the bright blue will depart, leaving the chamber nearly as it was before it was put into the box.

The operator should not forget every seven or ten minutes to take out the article and rub it with the tow and lime. It must not be left long in the air. Presently a rich dark blue is obtained. Finally, when it is properly blued it is allowed to cool and then oiled with any suitable oil. This completes the process and gas men will find it a good one.

Blacking Metals

An article of this nature would be incomplete without some reference being made to blacking metals.

Dealing first with brass goods, the dead black on certain scientific instruments is usually produced by dipping in a solution of chloride of platinum. To make

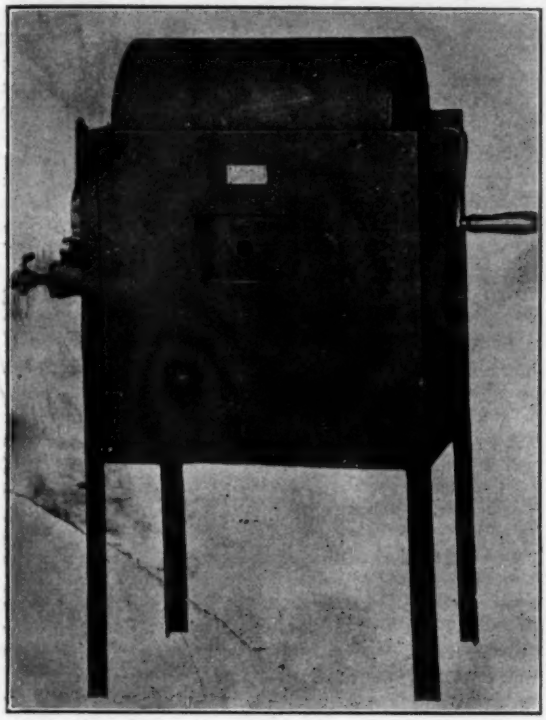


FIG. 1.—ROTATING DRUM

this they take two parts of hydrochloric acid, one part of nitric acid and mix them in a glass bottle. They put in as much platinum foil as the acid will dissolve when placed in a warm sand bath heated by a gas burner. To hasten the solution they heat to nearly boiling point of the acids. Half an oz. of nitric acid and 1 oz. of hydrochloric acid will absorb almost 30 gr. of platinum, but in order to neutralize the acid it is better to have an excess of platinum. Sometimes they brush the article or dip it in the chloride, but any of the usual methods adopted will do. The material is expensive but a little will do a vast amount of blacking work.

LUSTROUS BLACK ON BRASS

To get a lustrous black on brass the method of procedure is as follows: They mix equal parts of copper sulphate and sodium carbonate. These solutions must be quite hot. They then wash the precipitate as it lies on the filter paper and dissolve immediately in ammonia —there should be an excess of ammonia. The solution should then be diluted with water (¼) and a small quantity of plumbago added; say 20 to 50 gr., depending on the amount of solution used, and the material is then heated to almost 100 deg. Fahr. The brass articles must next be thoroughly cleaned and left in this bath until they are black. They are then washed well in water and dried in a hot sawdust bath, i. e., in a gas heated sawdust dryer which has been described in preceding articles. Only as much solution is prepared in this and similar cases as is required for immediate use.

There is a blue-black coating for brass which is made of 7 oz. copper carbonate dissolved in 1½ quarts of strong ammonia; a precipitate is formed as in the last case mentioned and the solution is then diluted with 1 quart of water.

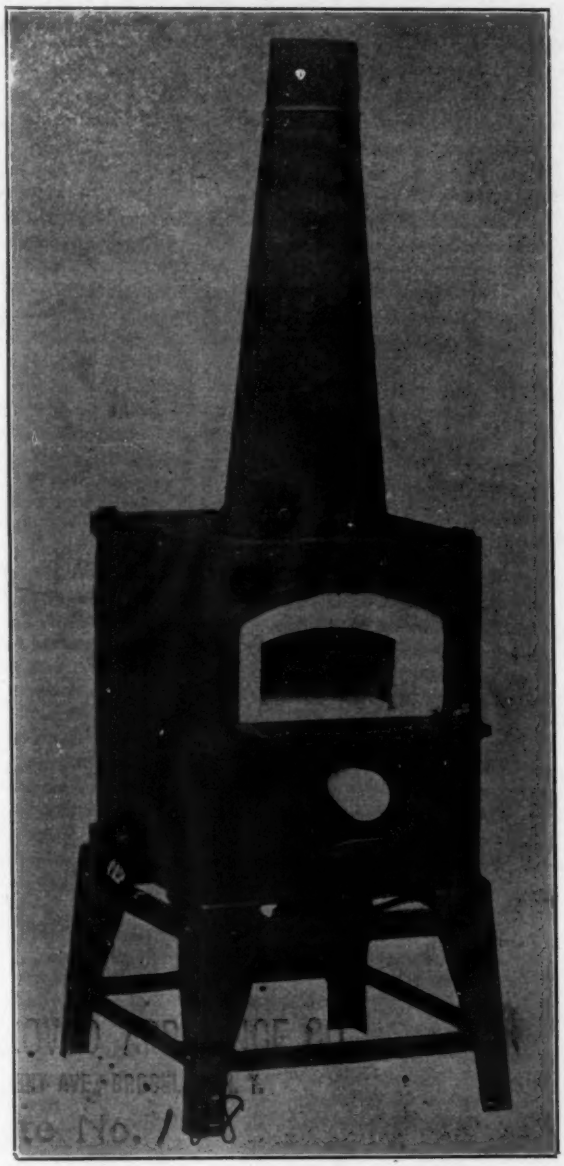


FIG. 2.—GAS FURNACE FOR BLUING REVOLVERS AND PISTOLS

BLACKING FOR OPTICAL INSTRUMENTS AND OTHER BRASS WORK

Of the various blackings for brass work beyond those briefly referred to above there are some five in number which the gas man will be interested in. For convenience they will be numbered:

1.—For dead black for the inside tubes, etc., they use alcoholic shellac varnish and lampblack—equal parts by weight—and thin with enough alcohol to make it flow freely. It is then applied to the warmed brass.

2.—The second is made by dissolving in 4⅜ fluid oz. of ammonia, ½ oz. of copper carbonate, stirring constantly while dissolving. To this is added ½ pint of water. The articles have to be suspended in this solution by brass or copper wires for a short time. This coating is durable in the open air and may be conducted cold.

3.—Many optical and philosophical instruments made in France and elsewhere in Europe often have all of their brass surfaces of a dead black color, which is very permanent. It has until recently been rather difficult to imitate it. The following has been given the writer as the process now employed: They make a strong solution of nitrate of silver in one dish and of nitrate of copper in another. They mix the two together and plunge the brass into it. The brass goods are then removed and the brass is heated evenly until required degree of dead blackness is obtained. This heating is best done in an oven and if large batches are to be put through, a conveyor oven is probably the best material. This is a valuable adjunct to the blackening of parts of cameras, i. e., where blackening of the brass plates is essential.

4.—As already stated, however, the best means of producing a black surface on brass, pinchbeck or silver is said to be platinum chloride which is allowed to liquefy by exposure to the air. It is rubbed in with the finger or better with the ball of thumb. After blacking, the object is washed and polished with oil leather. Platinum chloride is dear, but a little does a lot of work.

5.—A desirable black for brass work of instruments, fixtures, hardware, etc., is given by taking lampblack (say just a thimbleful as an example), and put it on a flat stone or smooth slate; then add 4 to 5 drops of gold size and mix well with a palette knife, making the whole about as thick as putty; then mix well. The less gold size there the better, so that the lampblack sticks together. If too much gold size be added, the effect will be a bright black and not a dead black. The method is now to add turpentine, about twice its own volume, to the whole, mix with a camel-hair brush and then apply to the brasswork. When carried out on a large scale the work is done by mechanical brushes and the brasswork is warmed in a gas-fired oven first of all.

A dull black is obtained on copper by the platinum chloride method in just the same way as with brass, but to obtain a black or enameled copper it has to be cleaned thoroughly with sand and sulphuric acid; they then warm it and apply the following: Three parts of white arsenic, 6 parts of hydrochloric acid, and 1½ parts of sulphuric acid; water is added to the extent of 26 parts.

Gun Metal

For blacking gun barrels, etc., they proceed as follows: Two oz. solution of nitric acid, 4 oz. tincture of iron, 3 oz. alcohol, 3 oz. sweet spirits of niter, 1 oz. of vitriol blue, 1½ pints of distilled water. The barrel is scoured smooth, all grease is removed with lime or else by dipping in a solution of any regular cleaning liquid made hot—usually contained in a tank (a gas heater furnace is ideal). After this they coat freely with the mixture with a sponge, but not so as to run about the metal. It is then allowed to stand in a cool place for about ten hours. It is then placed in an oven and allowed to dry absolutely. Rust will be formed which will dry off and not be sticky or streaky. If barrels are not dried properly they will be red so that this feature is important. The scratching has to be done with lard. After this they are put in another tank—here again a tank furnace is excellent—and boiled for about ten minutes. They are then taken out and wiped inside and out. They are allowed to cool off and scratched to remove dead rust, wiped with clean rags and then coated lightly with the mixture and allowed to dry. They then are scratched, boiled and so on as in the first coat and as many as six coats are often given when they are finished by oiling. The same treatment can be given to all steel goods. A black on gun barrels is also done as follows: They first take chloride of mercury and sal ammoniac; second, perchloride of iron, sulphate of copper, nitric acid, alcohol and water; thirdly, perchloride and protochloride of iron, alcohol and water; fourthly, a weak solution of the sulphite of potassium. These solutions are successively applied, each being dried on before the other is used—a gas-fired air heater blower attached to the dry room into which trucks of the barrels can be run is a good proposition—No. 3 is applied twice and a bath of boiling water follows Nos. 3 and 4. The shade of color is fixed by active friction with a pad of woolen cloth and a little oil. The shade thus obtained is a beautiful black of uniform appearance. This process used to be used in the manufacture of guns in France, and the blue black coating now produced in the United States on certain steel products is also obtained, it is believed, in this or a similar manner. Gas men should not think that guns are dead because the war is. In fact, the manufacture of sporting goods is likely to increase rapidly and such guns as are used for that purpose will be in demand. The alcohol mentioned is used to make the application dry quickly. The perchloride of iron and the sulphate of copper in No. 2 should be used only in a moderately strong solution and only about 10 per cent of nitric acid added to the water. No. 2 applied in three or four coats will form a common brown coating. After the last application has become dry it is rubbed with a wire scratch brush, washed with warm water, then dried and afterwards rubbed down with a composition of beeswax dissolved in turpentine.

Readers will bear in mind this, that this class of formula is capable of being used for a score of other purposes where blacks and blue blacks have to be produced on steel surfaces.

A black polish on iron and steel is also gotten as follows: Oil of turpentine, 15 parts, and sulphur, 1½ parts, are boiled together. They put just a very thin coating on the article and then hold it in the flame of a burner.

Black having a polish to be used on iron goods is made as follows: Pulverized asphaltum, 1 lb.; gum benzoin, 1⅛ lb.; spirits of turpentine, 2 quarts. Before using, this has to be warmed (in a water bath preferably—a gas-fired flue heater of the water jacketed type is good for small batches). This can be shaded well with ivory black finely ground. It should be used on iron exposed to the weather as well as interior work requiring a nice polish. It is applied with a brush, as a rule, and often the steel or iron parts to be treated are warmed first of all.

Another blacking for metal is made of four parts of turpentine, one part of gold size or copal varnish. They add best vegetable black till the whole is of the

consistence of thin cream. It is then ground and strained through cheese cloth. It has to be applied quickly once over the work with a soft brush and dried off in a heated dry room. Gas as direct heat can be used or, as an alternative, a gas-fired air heater or an indirect atmospheric radiator may be employed. This is sometimes called Berlin black and is used by stove grate manufacturers. It is also used in some classes of fixtures.

Blackening Zinc

Zinc can be given a fine black color by cleaning its surface with sand and sulphuric acid, and immersing for an instant in a solution composed of four parts of sulphate of nickel and ammoniac in forty parts of water, acidulated with one part of sulphuric acid. After this it is washed and dried in a dry room such as that just referred to.

The black coating adheres firmly and takes a bronze color under the burnisher. It can also be applied to good grades of galvanized iron. Brass can be stained black in a somewhat similar manner except that they use a liquid containing two parts of arsenious acid, four of hydrochloric acid and one of sulphuric acid, in eighty parts of water.

Another way is to use a weak solution of sulphate of copper and then with a decoction of logwood.

All through it will be seen that gas plays a leading part in this class of work and although it cannot be called big business, yet it is better to keep an eye for the use of gas for such work than to allow other fuels to remain. There are still concerns using coal and coke for lacquering; oil for heating in the bluing processes; steam for heating water and lye for cleaning and so on. Yet in many cases no effort appears to be taken to change these installations over to gas.

No industrial engineer is wanted for such work. The average gas man with horse sense can do it himself if he has a little confidence.

Loyalty — Does It Pay?

They Once Told Us that Industry and Loyalty to One's Employer Were Sure Roads to Success — Is This, in the Light of Present Day Conditions, Borne Out in Practice?

By EDWIN DEAN

We have witnessed much of disloyalty; groups in whose behalf we had done much; of whose welfare we had been extremely solicitous; turning their backs upon us at the first opportunity that presented itself, leaving us undermanned at the time of greatest stress when lured even by but slightly higher compensation than our extreme limits would enable us to afford.

We have adjusted and readjusted with these groups, always guarding that we should not in the least iota be unfair. We have asked ourselves how much these groups needed to live in decently, and determining that; have given it to them even if it has been, as in many cases it was, more than we could afford.

But none of us are so simple that we beguiled ourselves in the belief that we comported ourselves thus fairly with these groups out of appreciation of their loyalty to the company or even out of recognition of their industry.

Their loyalty they had demonstrated conclusively was a more than minus quantity. Their industry has been at as low an ebb as in any period we can recollect.

Thus it would seem that people can get ahead, at least for the time, without the recommendation of the possession of either quality.

Let us turn then to the reverse of the shield. How has fared that class, which strange contradiction in these changing times, has adhered to the old-fashioned qualities loyalty and industry.

One is struck with the comparative fewness of the men, who, four years ago were superintendents, for instance, and are not still superintendents and with the same company or, at least, still connected with it in another capacity.

The staff men have been loyal as a class. And they have been industrious to a more intense degree than ever before.

How have they fared?

If the laborer's dollar is only worth fifty cents to him to-day, that of the staff man is worth no more.

In isolated cases staff men, superintendents, accountants, executives, managers, engineers, etc., with gas companies might have been piling up affluence, but the general run, it is certain, was not doing much more than earn a decent living.

Perhaps many of us have been as loyal to these men as they have been to us. It must have been a great effort if we have, for no man is so courageous that he can hasten his progress to his own doom with a pleasant face even though plain justice demands that he do so.

Few, if any, gas companies are so fortunately placed that each dollar of increased costs is not a serious matter. The temptation, of course, would be to temporize; to pay where we have to and put off, hoping at a future time to make good, what we are not now compelled to pay.

If we have "put off" with many gas company employees, if they are not faring considerably better in the way of wage than they were a few years ago, they must, many of them, be in a serious way.

And the reaction upon them must be powerful in the way of morale. It takes considerable to wear down the loyalty of a thoroughly loyal man, but even he is not invulnerable.

Loyalty is so scarce in the world to-day, and it is so precious and useful that it should never be trifled with. Particularly in the gas industry is loyalty an asset of immeasurable value. Because it has been more than richly endowed with it up to the present is no reason why careful provision should not be made that it be just as richly blessed with it in the future.

Give careful thought to the staff man, the salaried worker. Study his situation from his angle; not the company's. If he is so fixed that he is getting by decently and without hardship it may be we can bank still farther on his loyalty. If he is enduring privation, correct it no matter what the cost.

The worker deserves his living no matter what the financial stress of his employer.

If the People of Any Municipality Receive the Services of Any Public Utility at Less Than Cost or at a Less Than a Fair Profit, Inexorable Economic Law Will Compel Them to Make Up the Deficit

One of the splendid by-products of the Federal Income Tax, is that it has caught the careless business man, as well as careless corporations, that they cannot continue in business in the old happy-go-lucky manner of a decade ago, when very few business men or organizations possessed any really adequate accounting systems, and hence were often like practically all coal and gas producing agencies at that time, actually losing money every month of the year without knowing it. This stage in the evolution of industry has happily passed, we hope never to return, so that under the spur of necessity even the coal and natural gas companies which prior to the World War had nearly all been selling their products below actual cost based upon any proper accounting system, are now beginning to realize that they must secure more adequate prices from the consuming public, or they cannot command the funds necessary to continue efficient service, or finally any service at all.

This is a statement by Dr. I. C. White, State Geologist of West Virginia, in a paper which he prepared for the Ohio Gas and Oil Men's convention held at Columbus, Ohio, in October, regarding the price of natural gas which the eminent geologist firmly believes is too low.

Dr. White has made an exhaustive study of the rapid exhaustion of the natural gas resources in the State of Ohio. He said in part:

"From recent studies of the natural gas resources of my native State of West Virginia, it has been estimated that at least three-fourths of the original supply has been exhausted, of which very probably more than one-half has gone into the air unused for any purpose, and it is quite probable that Ohio's original supply is exhausted to about the same extent with a waste nearly as great as that of West Virginia.

"It was the writer's good fortune to have had an intimate personal acquaintance with the late Dr. Edward Orton, State Geologist of Ohio, for many years. Dr. Orton was not only one of the most eminent geologists of the period in which he lived, but a ripe scholar, able and philosophic thinker, a brilliant writer and one of the most gifted teachers your great State has ever produced. Dr. Orton's special study of oil and natural gas began in the later '70s and he always insisted to the day of his lamented death that natural gas was a fuel too pure and refined to use for general manufacturing or power purposes where coal is accessible, and that it should have been conserved entirely for domestic fuel, which but for the frightful waste and unwise use would have lasted for centuries instead of decades within the areas now supplied. The truth of Dr. Orton's far-seeing vision, in which I have always concurred, is just now being adequately realized by the great producers and suppliers of this most wonderful fuel which Dame Nature furnishes from her laboratory already manufactured, purified, ready to serve the domestic user with light, heat, or power in double the value of any other gaseous fuel that man has ever been able to generate."

Regarding the problem of rates and conservation confronting the natural gas industry, he has the following to say:

"The producer and marketer of natural gas has never asked or received an adequate or equitable price for his commodity, either for domestic or manufacturing purposes. This statement should be self-evident to anyone who will give serious thought to the question. First let us consider the cost of gaseous fuels manufactured in retorts either for light, heat or power. In your sister city of Wheeling, just east of the Ohio border municipal ownership of public utilities has enjoyed one of its earliest tryouts in the city gas works. Manufactured gas containing approximately 550 B.t.u. was once sold by the city of Wheeling to its citizens at a price lower than in any other municipality of this country, since, while the people in other cities were paying from $1.50 to $2.50 per 1,000 cu. ft. for manufactured gas, Wheeling was selling the same to its citizens for only 75 cents. This result was long pointed to as a conspicuous example of the economic results and benefits flowing from municipal ownerships of public utilities. Wheeling still owns her gas works but they have ceased to function and are at present being junked. Her citizens are now liquidating the former benefits they enjoyed at probably much less than actual cost. It may be set down as an axiom that if the people of any municipality receive the services of any public utility at less than cost or at less than a fair profit, they will later either directly or indirectly be compelled by inexorable economic law as unchangeable as fate itself, to make up that deficit and often much more. This homely truth is just now receiving a nation-wide illustration in the case of the railways of the country. The Interstate Commerce Commission, in response to a universal prejudice against railways and public service corporations generally, systematically refused to give them permission to raise freight or passenger rates to a point where they could earn a fair return on the capital invested, and also a sufficient surplus with which to maintain their properties in a state of efficiency, and provide new rolling stock, new locomotives, new tracks, branch lines, etc., to meet the growing wants of increasing and expanding business. This starving process had continued for years under the domination of political forces until the Interstate Commerce Commission itself confessed that something must be done to save our great trunk lines of transportation, the vital arteries of the nation's life, from universal bankruptcy. Just at this critical period in railway strangulation by the Nation's Public Service Commission (The Interstate Commerce Commission), we became involved in the World War, and the Government took over the operation of the railways. The first thing it did was to raise passenger, freight, and all other rates 30 to 40 per cent, and even under these advances, has been losing over a half-billion dollars a year on their opinion, so that Director General Hines has said that another large increase in freight rates is absolutely necessary before these properties are returned to their owners in order to keep them from disorganization and insolvency, and permit them to serve the transportation interests of the country satisfactorily and efficiently."

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As the Journal Views It

Struck Gold Without Digging for It

We have been commended on our editorial expression as to the industrial fuel engineering service supplied by the American Gas Association in the Nov. 8 issue of the AMERICAN GAS ENGINEERING JOURNAL.

In the editorial alluded to, "Giving a Boost to Industrial Fuel Gas," we said *"that the need or desirability of engineering service in industrial fuel as furnished by the association is a thing of the past.*

"When industrial fuel engineers were scarce it might have been justified. To-day there are industrial fuel engineers who are making a living by supplying such service as the industrial engineer of the American Gas Association is furnishing.

"Not being subsidized, they are competing under an unfair handicap. Business is denied them that should be theirs.

"The association's specialist is advertised by the association. If the private consultant had the money to so advertise himself, professional ethics would deny him the privilege.

"The private consultant must make his task pay to live. The association expects its specialist only to be as nearly self-supporting as possible.

"It is time that the association's specialist be withdrawn from field competition with the association's members."

One caller at our offices styled these expressions as something a good many men had in their minds to say for the past couple of years, but the AMERICAN GAS ENGINEERING JOURNAL was the first to have the gumption to utter them.

That this journal never did express itself in regard to the association's industrial fuel engineering service previously is because it considered the injury it did was of minor consequence compared to its benefit.

We were looking at the matter from the angle of the consulting industrial fuel engineer and knew definitely of but very few who had engaged in such work.

Of course, other members of the association skilled and experienced in industrial fuel engineering, were being disadvantaged through having an obstacle in the way to a possibly more profitable outlet for their activities than being tied up to one particular company as an employee.

And any hampering of individual opportunity is a thing to be frowned upon and not to be countenanced by the National Gas Association.

This country is great because of the few leashes the individual had to break before forging ahead.

Individual opportunity was solicitously nurtured and guarded by the community as a whole rather than restrained. The American could go just as far as he willed, provided he had the ability, and his aims were moral and legitimate. And the laws were framed to facilitate and guard rather than hamper his progress.

Of recent years there has seemed to be a trend in the other direction.

But gas men and utility men have reason to fear the effect of such reaction upon the quality of citizens that will be produced.

A prime responsibility of the American Gas Association is to advance and broaden the individual's opportunity for self advancement rather than directly or indirectly restrict it.

The editorial comment we are discussing was merely incidental to another matter being commented upon which provided the theme of the editorial.

Resulting comment, however, has convinced us that the importance of the incidental was undervalued. The objections to the association's industrial fuel engineering services are broader than we imagined.

While there are a considerable number of competent industrial fuel engineers in gas company employ, the field is not overcrowded, the demand that should exist is possibly greater than the supply.

Thus an industrial fuel engineer has a right, aside from the big business each sale brings, to expect a higher grade of compensation and personal standing than the general run of salesmen.

If a gas company wants industrial gas business that can be gotten only by an industrial fuel engineer, who is not to be obtained at a price less than his services are worth, that gas company will pay the price.

But when that gas company is offered a loophole in the way of a subsidized service by which it gets the goods at less than they actually cost, it has the upper hand on the industrial fuel engineer.

If the latter persists in standing out for what he is worth—and no one will say he merits less—he can do without the job. The company knows where it can, or thinks it can get the service at less than cost.

Thus it would appear that the association's industrial fuel engineering service affects adversely not only the member who essays to make a livelihood by consulting work in industrial fuel engineering, and the member who might like to did he not feel that too big an obstacle to be easily overcome was in his way, but, likewise, the member working on salary for a particular gas company as industrial fuel engineer.

We have confidence in the aims of the management of the American Gas Association as it exists to-day. We are certain it would go a long way to avoid injury to the interests of any individual, even in the slightest degree.

We, therefore, recommend that it study seriously the pros and cons of its industrial fuel engineering service. It was all right in its day, and doubtless supplied a much felt need. But to the viewpoint of the AMERICAN GAS ENGINEERING JOURNAL that day is past, just as the days when gas companies had to go outside their own ranks to get real salesmen are past.

Huge Accumulations of Wealth

Three men stand out as extreme examples of the opportunities afforded in the United States to the individual to climb as high as he likes.

They mark a climax in our history, perhaps—a turning point. Men before them had accumulated fortunes, but no fortunes such as theirs. The very magnitude of them frightened legislators, sent them scampering to make such men impossible in the future, and, doubtless, the trend will be to gradually tighten the screws more and more until personal opportunity will be bound within limitations, broad ones possibly, but still limitations, which, however broad are deadening to initiative.

One of these men died a few months ago, another last week. The third still, at a very advanced age, survives.

Those who have died reserved very little of their store for their own issue or group. The major portion of it went back to make of this land of ours for all of us a better place in which to live. The third, still living, is doing much the same with vast sums of his wealth from year to year.

It might well be said that the type of mind that is able to accumulate for its possessor a vast proportion of the world's wealth is the world's best assurance that such accumulations will not react to its injury, but, perhaps, even to its betterment. Men capable of retaining against wolfish hands the store they have accumulated must of necessity learn to reason intensively and to see ahead.

All the world's wealth in the hands of one man's son would not leave him in clover. It would leave him

so haunted and harassed that even iron nerves would not permit him to survive a decade.

Life's greatest contentment is found when one has enough to reassure him against contingencies, but not enough to get him all the niceties his tastes crave without entering into life's work.

Human contentment varies in inverse proportion as one's fortune increases towards being colossal.

The wealth of the three we have in mind set them apart from the common run of us, isolated them and engrossed them to the denial of the things that to human beings make life pleasant—companionship, to the limit of one's desire, affection and close family interests and ties.

As human desires run, these men's fortunes, beyond a certain point, became a drag upon them, a killjoy.

And for what purpose have they utilized their surplus?

In the public weal.

They have thus sacrificed, whatever their original intention, that the public might benefit.

Thus they qualify as public spirited, patriotic men deserving of the highest esteem of all.

Marking as they do a turning point in American history, they will doubtless become historic figures whose names will live imperishably just as those of victorious generals and constructive Presidents.

They have but their own conduct to thank that kindly judgment will surround them.

With such vast wealth at their disposal, had they been short-sighted and inhuman, they could well have become sinister and a blight even upon their own progeny.

Which brings us to the interesting thought. We become cynical at times after contact with petty sharpers and shysters. But, it had been demonstrated to us too often to permit the slightest doubt, men's thoughts run naturally in predominating proportion, to good.

Had a tenth of those in whose hands came power to do evil not shrunk away from it in abhorrence, it is hard to imagine just what the world would be to-day.

It was as freaks, anomalies, that the Kaiser and the rulers of Germany, men in whose hands were placed the destinies of a people and who chose to utilize their power in evil ways, reaped widespread and odious publicity. Had they been normal men they would have been sobered by the very magnitude of their responsibility and proved true to their trust.

When we tremble at what our neighbor could do were he evilly inclined, even left to his own unrestrained inclination, will prove of good conscience. Civilization has progressed that far at least.

Man can, as a general thing, with more than reasonable security, trust his fellow men.

To Catch Up With Construction Programs Back From Three to Five Years, Gas Industry Will Require Millions of New Investments Within Near Future

(*Continued from page 552.*)

hend that the cost of money is the first cost that a public utility has to absorb. It must get in new money before it even approaches the new price level of the materials and services that enter into the construction, maintenance and operation of its arbitrarily growing plant.

"We are operating in an entirely new era of costs—costs of materials, cost of labor and cost of money. Increased cost of money for new capital has an especial significance to the public utility industry. The industry, if it is to succeed, must continually attract new capital to the business. Whether the new capital is attracted or not depends largely on whether the return to be allowed is fair. The rate of return is largely contingent upon the understanding and fair dealing of the commission. It is obviously of vital importance that the whole industry should unite in bringing to the realization of the public and the commission the fact that there must be a change in the pre-war standards of what constitutes a fair return on capital dedicated to the public service by investment in public utilities.

"It is quite clear that this program of education will not get very far if the industry is unable to present a united front and if any of the companies express themselves as satisfied with the former standards as to the rate of return on their profits. We have been taking this matter up with some of the other companies and all are agreed that it is most essential that all companies should co-operate in every way possible in seeking to prevent the acceptance of unsafe standards. It may take some time to get any general official recognition of the new standards, but it will help some if the old standards are accepted only under protest.

"It is for this reason that I have taken the liberty of going into the subject at such length in the hope that you will consider it worth while to discuss the subject in general conference with your various officials to the end that they in turn may discuss it with officials of other companies and with representative men in the community generally. If all the companies will adopt a similar policy the work ought to begin to show results.

"Few regulatory authorities are likely to act much in advance of intelligent public opinion, and until the public thoroughly understands the changed conditions which now confront public utilities, the commissions themselves are likely to be slow to act even though the merits of the case are clear."

I believe the foregoing letter is well worthy of our consideration; so if you have overlooked or neglected to take into full account this feature of your company's future, consider it now. Heretofore, many of us have formed the habit of taking our net operating revenue as the indication of the success or failure of our operation. To-day we must look further for indications as to the health of our properties, since the cost of money is no longer a fixed quantity. Take this into account, and incorporate it in your struggle for higher rates. If we lend a willing ear to that old song of 6 or 8 per cent as a fair return, we are listening to our funeral dirge. Investment conditions of to-day have keyed things to a higher tune.

If You Will Put Your Good Arguments in Advertising Copy You Will Hear the Public Repeat Those Arguments as Their Own

Peterson Has Been Reading About the Big National Advertisers and Discovers that They Advertise Themselves More Than They Advertise Their Products

By S. G. ADDISON

"I don't think we are doing the right kind of advertising," said Peterson one Monday morning as he was talking with the Old Man. "I am sure we could sell more goods and more gas if we talked less about them and more about ourselves."

"What makes you think that?" asked the Old Man. "Did you get some new fangled ideas while reading the papers yesterday? It was a rainy Sunday so I assume that you spent a good part of the day reading the Sunday newspapers."

"No," said Peterson, "it was not the Sunday newspapers that gave me this idea. I have been reading about some of the most successful advertisers in the country. Many of these advertise as much about themselves as they do about their goods. There was a time when I thought that these concerns were just throwing away their money but they kept growing richer and more prosperous, so it seemed to pay after all.

"I learned all that I could about them and one thing that impressed me was the attitude that the employees and the public took towards those concerns that advertised themselves as well as their goods. The public seemed to look upon these concerns as institutions that were a credit to the communities in which they were located and in many cases even a credit to the nation. The employees of these companies came to be very proud to work for them. I understand that in nearly every case the employees remain with these companies longer now since they have begun to advertise, than they did before they sold the idea of the company as well as merely the goods."

"So, you have found that this sort of advertising really pays, have you? I am inclined to believe you after what happened up at the Commercial Club last week. You know that the Climax Manufacturing Company is looking around for a place to locate a branch factory. There seemed to be an opportunity to get them here. We have had opportunities to secure many other factories, but I have never seen the members so unanimous or so much enthusiasm expressed for any concern as for this one. Everyone seemed to be well informed and everyone gave some argument why we should have this branch and why we should offer the company special inducements to locate here.

"When I got home, out of curiosity I looked through the advertising pages of several of the recent magazines in the house and was not very much surprised to find all the fine arguments that had been used printed in the advertisements published by the Climax Company. A good many of those fellows that talked so well, haven't the brains to think up such good arguments themselves. They had to find them ready made somewhere and naturally the easiest place was in the advertising.

"I am rather inclined to agree with you, Peterson, that it has paid these big manufacturers to advertise themselves as well as their product, but I don't see just why that kind of advertising would help us."

"I see two very good reasons why we should advertise ourselves," went on Peterson, greatly encouraged by what the Old Man had said, and beginning to really warm up to his subject. "You will probably admit that we have in our employ, several people who do not think that the gas business is as genteel a business to work in as the electric business. They seem to think that a person who works for the electric company has a position which carries with it a better social position even though the salary is not so high. I have reason to believe that there are some who already have applications for employment with the electric company. They sort of look up to the electric company. Haven't you noticed that?"

"Yes, I will have to admit that I have, but I have also found that that sort of employee has not been worth very much to us and that we were really better off after he left than we were while he was with us."

"That is all true enough but one reason why he was such a poor employee was because he was not taking enough pride in his work to be very deeply interested in it. If he could be made to feel a pride in his work he would not be looking with

longing eyes upon the electric light company and a job there."

"That sounds reasonable, but how are you going to make such a fellow take a real pride in the gas company and his work with the gas company?"

"I am going to make him take this pride by advertising the accomplishments of the company. I have been looking into the matter a good deal lately and I find that there is not an institution that has accomplished as much in this town during the past seventy-five years as the Blankville Gas Company. We have some old photographs that can be used with effect. We have done a great deal of work that has helped wonderfully to develop the town about which no one has ever heard a word. If we just start out and talk a little about the good things we are doing and about what we are now doing to develop the city, it will not be long before the people who now work for us will be proud to say that they work for the gas company, and there will be none of them trying to get positions with our competitor. You see this sort of advertising will make the Blankville Gas Company something bigger and better than a concern that makes and sells gas and sells gas ranges, water heaters and other gas appliances."

"That all sounds very well," remarked the Old Man rather skeptically, "but I don't see just how you are going to bring it all about. As I understand it, the first reason you have for advertising the company is to make our employees so proud of the company that they will stick to their jobs and take a greater interest in their work. It will be worth a good deal of money to accomplish this. What is your other reason?"

"To make the public of this city take the same attitude towards us as the members of the Chamber of Commerce have taken towards the Climax Manufacturing Company. You know that the public has not really heard very much about us except what they have heard from our enemies. They know what we make and what we sell, but they really do not know much of anything about the company itself. If we give them the facts, they are going to take an entirely different attitude towards us. They have based their present opinions upon incomplete information, a good deal of which has not been altogether true.

"It would have meant a great deal to us if the public had known more about us and had been more friendly towards us during the war when we needed to increase our rates. If they had been it would not have been nearly as hard to persuade the commissioners to grant rate increases. You see we are strangers to the public. People don't know us well enough to be certain that it is safe to trust us. This sort of advertising that I am advocating will make them better acquainted with us."

"Your idea is rather new and radical, isn't it?" queried the Old Man. "I don't recall ever having seen it tried."

"In some respects it is and in some it is not," explained Peterson. "This sort of advertising is not so very different from the type that companies have used to fight municipal ownership agitation and other agitation that threatens the very existence of the company. The main difference in our case will be that we will use it before we are actually forced to use it, and, of course, will write our copy from a little different angle."

"The possibilities are great," admitted the Old Man, for the first time showing some real interest in the plan, "but just how are you going to work it out? Who did you plan to have write the copy? You know it will be much harder to write this sort of copy than the kind we have been using. The kind of copy that will secure the results that you want to secure will have to be both interesting and convincing. Do you know anyone who can write this kind of copy?"

"I knew that you would ask this question," replied Peterson, "and I looked around for the right man before I mentioned the subject to you. You probably know Billy Jones of the *Star*. He has been writing feature stories for the Sunday edition for some time. He is also writing articles and stories for some of the big city papers and is just beginning to break into the magazines. He has demonstrated his ability to write interesting stories. I have talked with him about it and he is willing to write us a series of advertisements. He is also willing to go over them with us after he has written them and make them fit our requirements as we see them."

"His prices are going to be pretty high, aren't they?" objected the Old Man. "I understand he is getting a pretty good salary and that he is getting good prices for the articles that he sells."

"In the end I don't believe it will cost us any more than it would to hire a man by the week to write these articles. The rate per word that he wants looks high, but I am certain that he will give us just the sort of copy that we want. It will not require so much time and expense to go over it and revise it as would be the case with a less experienced man along this line, and the copy he writes is going to get results. If it is good enough so that people will buy the papers in order to read what he has written, it most certainly will be good enough to make the people read it when we have put it into the space that we have paid for."

"Well," concluded the Old Man, "you have made me think enough of the idea to want to try it out. Let me see the copy when you get it ready and I want to keep in close touch with all the other phases of the campaign, so come in and talk over all the details with me. If it works half as well as you think it will we will have to keep it up."

Dealers and Louisville Company Stage Big Holiday Appliance Campaign

Local dealers of Louisville, Ky., have joined with the Louisville Gas & Electric Company in an advertising campaign to stimulate the giving of appliances for Christmas gifts. One ad will appear every day—each five columns wide—full page depth. Attractive window displays and interior decorations will be maintained and plans have been made for the biggest holiday appliance sales in the history of Louisville. Miss Grace Otter, supervisor of the Home Economy Department of the Louisville Gas & Electric Company, will act as Santa Claus' secretary during the three weeks of the campaign. Her services are offered to the puzzled gift giver as follows:

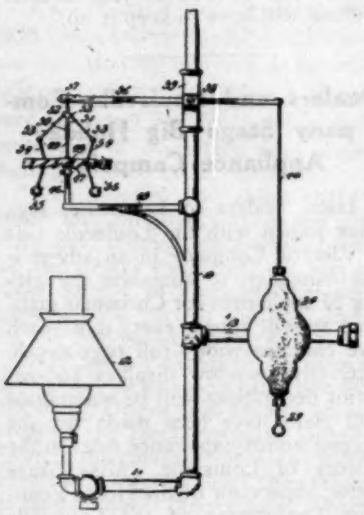
"If you are in doubt about what a 'certain person' wants for Christmas, Miss Otter will find out and let you know. She will not in any way attempt to influence the 'certain person' toward the selection of an appliance, nor will she solicit your selection of any gift. It is simply a service she has undertaken for your benefit—and which she will endeavor to carry out in as diplomatic a manner as possible. Her services are yours for the asking."

PATENTS PERTINENT TO GAS INDUSTRY

Safety Gas Cut Off

Patent No. 1,321,656; described in Patent Office Gazette, Nov. 11, 1919. Silvio Nagaton, Brooklyn, N. Y. Filed March 17, 1919. Serial No. 283,134. 3 claims. (Cl. 67-114.)

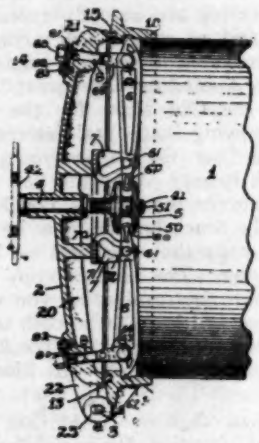
A gas fixture including a pipe, a bracket extending therefrom, a vertical spindle mounted on said bracket, a windwheel carried by said spindle, a pair of pivoted arms carried



by said windwheel having their ends weighted, a member vertically movable on said spindle, links connecting said member with the arms, a lever fulcrumed upon the pipe and having one end loosely connected with the movable member, a valve for controlling passage through the pipe, a clock work mechanism including an escapement adapted to move the valve to close position, and a rod carried by the other end of the lever and engaging said escapement mechanism to prevent operation thereof during the rotation of the windwheel.

Means for Securing Retort-Doors Has Clamping Device

Patent No. 1,321,341; described in Patent Office *Gazette*, Nov. 11, 1919. Nelson Troyer, Seattle, Wash., assignor to Seattle-Astoria Iron Works, Seattle, Wash., a corporation of Washington. Filed Dec. 19, 1917. Serial No. 207,943. 14 claims. (Cl. 70-3.)



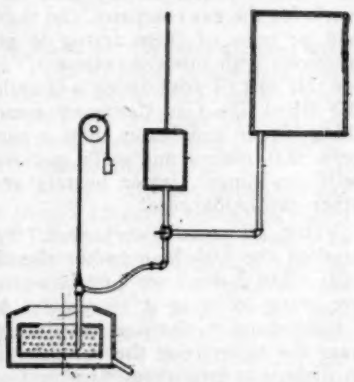
A clamping device for retort doors comprising a series of locking levers extending radially of and at the inner side of the door, fulcrum links pivoted to the door and to the levers to swing radially of the door and means operable from without the door to both radially shift said fulcrums and to swing the levers upon their fulcrums to thereby engage the levers with the door jamb and to then seat the door.

Appliance for Washing Ammonium Sulphate

Patent No. 1,321,993; described in Patent Office *Gazette*, Nov. 18, 1919. Frank E. Dodge, Flushing, N. Y., assignor to the Barrett Company, a corporation of New Jersey. Filed June 19, 1919. Serial No. 305,390. 8 Claims. (Cl. 23—21.)

In a crystal washing apparatus of the class described, in combination, a perforated centrifugal basket for removing surplus liquid from crystals and means for washing said crystals with a predetermined amount of liquid, said means comprising a storage tank, a secondary tank, and a three-way valve which alternately opens communication from said storage tank to said secondary tank and from said secondary tank to said centrifugal basket.

A process of washing crystals

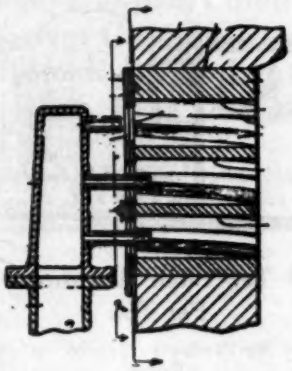


which comprises drawing the surplus liquid from a number of batches of ammonium sulphate crystals and subsequently washing each batch with substantially the same predetermined quantity of saturated ammonium sulphate solution, whereby uniformity of product is obtained.

Gas Burner with Mixing Passages Communicating Directly with Atmosphere

Patent No. 1,322,249; described in Patent Office *Gazette*, Nov. 18, 1919. Edward D. Leland, Pittsburgh, Pa., assignor of one-half to Fritz Uhlenhaut, Jr., Pittsburgh, Pa. Filed April 18, 1918. Serial No. 229,276. 3 Claims. (Cl. 158—1.5.)

In a gas burner, the combination with a furnace wall, of a refractory mixing-plate set therein having a plurality of mixing passages extending through it with open outer ends

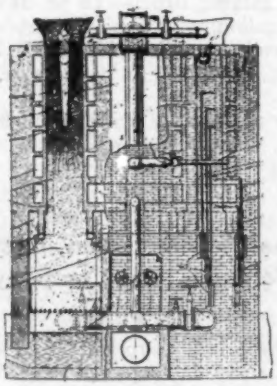


communicating directly with the atmosphere whereby all the air for mixing and combustion enters said open ended passages, a box, means for supplying gas to said box, and individual pipes leading from said box to said mixing passages whereby the combustion takes place at the discharge ends of said passages.

Apparatus for the Manufacture of Combined Coal and Water Gas

Patent No. 1,321,963; described in Patent Office *Gazette*, Nov. 18, 1919. William D. Wilcox, Chicago, Ill. Filed Jan. 17, 1916. Serial No. 72,467. 27 Claims. (Cl. 48—7.)

A gas apparatus, comprising a retort-generator having a generating

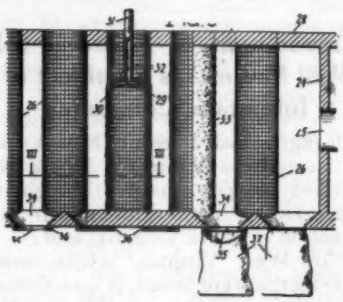


chamber and a retort above and communicating with said chamber, means for conducting waste gases from the generating chamber upwardly around said retort, a flue into which said gases are discharged, a stack with which said flue communicates, a superheater in said flue and arranged to discharge into the generating chamber, and means for supplying steam to said superheater.

A gas apparatus, comprising a generating chamber, a retort above and communicating with said chamber, a plurality of separate gas outlets communicating with said retort at different levels for separating the gases given off at different temperatures, and exhaust mechanism for controlling the overflow of gas through said outlets.

Apparatus for Renewing and Reclaiming Solids from Gases

Patent No. 1,321,490; described in Patent Office *Gazette*, Nov. 11, 1919. Ernest J. Sweetland, Montclair, N. J., assignor, by mesne assignments, to United



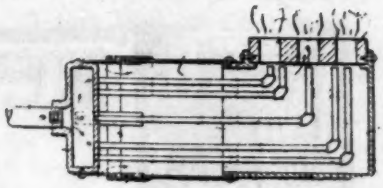
Filters Corp., a corporation of Delaware. Filed Aug. 4, 1915. Serial No. 43,516. 4 claims. (Cl. 183—61.)

A device for removing solids from gases under pressure, including a tubular intercepting member through the walls of which the gas is caused to pass, an annular nozzle extending around the tubular intercepting member and slidable longitudinally thereon, said nozzle serving to force a reverse current of gas through the walls of the tubular intercepting member at successive zones thereof for the purpose of removing the solid matter deposited on the tubular intercepting member.

A Gas Burner with a Valve Controlling the Supply of Gaseous Fuel

Patent No. 1,322,131; described in Patent Office *Gazette*, Nov. 18, 1919. Carl Oscar Nordensson, Pittsburgh, Pa., assignor to Duquesne Burner Service Company, Pittsburgh, Pa., a corporation of Delaware. Filed Nov. 26, 1918. Serial No. 264,191. 2 Claims. (Cl. 158—119.)

In a bas burner, the combination of a suitable shell or casing, a mixing-plate at the discharge end of said casing having openings therein, a box at the front end of said casing, pipes

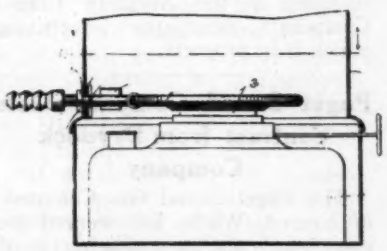


leading from said box into said casing adjacent to said openings in said mixing-plate and registering therewith, said casing having an air inlet adjacent said box, a slide-valve encircling said shell and controlling said air inlet, a valve controlling the supply of gaseous fuel to said box, and connections between said valve and said slide-valve whereby said valves are operated simultaneously.

Gas Attachment for Oil Stoves

Patent No. 1,322,453; described in Patent Office *Gazette*, Nov. 18, 1919. Ernst V. Jungk, Brooklyn, N. Y. Filed Nov. 5, 1918. Serial No. 261,245. 1 Claim. (Cl. 158—11.)

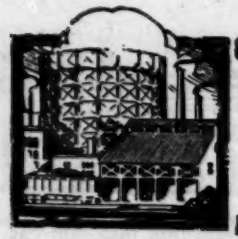
A combined oil heater and gas heater comprising a casing, an oil burner provided with a wick arranged to project a flame substantially centrally of the casing, a gas burner encircling the oil burner but spaced radially therefrom slightly



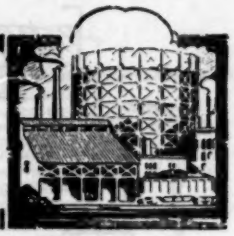
above the end of said wick and formed with inclined passageways whereby the flames produced by the gas will be projected substantially centrally of said casing, and means for directing gas to said gas burner.

ARKANSAS VALLEY RAILWAY LIGHT & POWER COMPANY has declared the regular quarterly dividend of 1¾ per cent on the preferred stock of the company, payable Dec. 15, 1919, to stockholders of record Nov. 29, 1919.

OKLAHOMA GAS & ELECTRIC COMPANY has declared the regular quarterly dividend of 1¾ per cent on the preferred stock of the company, payable Dec. 15, 1919, to stockholders of record Nov. 29, 1919.



NEWS OF THE GAS INDUSTRY



Coal Famine Stimulates Sales of Gas Heating Appliances

That the coal strike has had the effect of stimulating considerable inquiry into the subject of house heating with gas, is the statement of officers of the Public Service Company of Northern Illinois, who say that additional users of this form of the company's service have been listed.

It is stated that the best efficiency demands the installation of a special boiler for this work. The future employment of this service is viewed with great optimism by the Industrial Gas Department of the company.

Sales of gas heaters were increased by the strike, and the company officials say there was also a good demand in the last month for water heaters. The names of plumbers and dealers co-operating with the company in the various towns are being included in the Northern Illinois Company's newspaper advertising which is in progress.

Puget Sound Company Gets Contract from Drydock Company

The Puget Sound Gas Company, of Everett, Wash., has secured the contract for the gas requirements of the Norway-Pacific Construction & Drydock Company's plant, and construction of a line to serve them has already been started. The shipyard will begin work on Government contracts as soon as connection has been made, and when these have been completed work will begin on a pending contract for ten vessels to cost approximately $18,000,000.

N. Y. Consolidated Company Plans New Bond Issue

The Consolidated Gas Company of New York will hold a special meeting on Dec. 29 to vote on the proposition already approved by trustees for the creation of $25,000,000 of 5-year secured 7 per cent convertible bonds, dated Feb. 1, 1920. The new issue is to be secured by the pledge of certain shares of stock and are convertible at the option of the holder on Feb. 1, 1922, or on any interest date thereafter into the company's capital stock at par. The purpose of this issue is to take care of the present 6 per cent convertible bonds, which mature Feb. 1, 1920.

Amendment to Railroad Bill Will Make Gas a Subject of Interstate Commerce

Congressman Reed, of New York, in an address before the House regarding the gas situation throughout the country, with reference to the situation in West Virginia, said:

"In West Virginia, where over 1,000 wells were tested, it was shown that the waste of natural gas for each well was at the rate of 12,000 cu. ft. a day, or 4,380,000 cu. ft. of natural gas per well per annum. There are at least 16,000 oil wells in West Virginia, and at this rate the annual waste from this source would be at least 70,000,000,000 cu. ft. of natural gas, equivalent to about one-third of all the natural gas used for domestic consumption in the United States. In Kentucky one well poured forth a stream of natural gas, the amount of which it has been figured at current prices was worth more than $3,000,000."

After giving a resume of the waste in other States, Congressman Reed is quoted in the Congressional Record as saying: "And yet these companies say they have no gas to supply to communities that refuse to pay an unreasonable increase in rates." Congressman Reed said the Supreme Court of the United States has held that gas is a subject of interstate commerce. He is endeavoring to have it placed within the jurisdiction of that body by an amendment to the railroad bill now under discussion.

It is the intention of the City Commissioners to bring these facts to the attention of the Public Service Commission after the rate hearing which was taken up in Washington on December 1.

Coal Tar Pitch Advanced $3 Per Ton

Other By-Products Quoted at New Prices

For a period of two years the market price of coal tar pitch has remained around $23 a ton. Last week it advanced $3, making the present market price around $26 a ton.

New market prices on other by-products were made this week. We quote the following:

Benzol, 90 per cent, tank cars, 25 cents per gallon; drums, 26 to 29 cents per gallon.

Benzol, pure, tank cars, 27 cents per gallon; drums, 28 to 31 cents per gallon.

Solvent naptha, tank cars, 22 cents per gallon; drums, 23 to 27 cents per gallon.

Heavy naptha, drums, 24 cents per gallon.

Sulphate ammonia, $6.25 per 100.

Toluol, pure, tank cars, 28 cents per gallon; drums, 29 to 32 cents per gallon.

Crude cresylic acids, 95 per cent, dark, drums, 72 to 75 cents per gallon.

Crude cresylic acids, 97 to 99 per cent, straw color, drums, 77 to 80 cents per gallon.

Canal Commission Rejects Columbia Gas Company's Proposal

The South Carolina Canal Commission to-day rejected the counter proposal made by the Columbia Railway, Gas & Electric Company, to complete the Columbia Canal within two years, and the pending litigation will be pressed.

The company recently accepted with several reservations, the commission's proposition to complete the canal. It was these reservations which induced the rejection. Chief among the company's reservations was the refusal to admit the State's title to the canal.

Nagoya, Japan, Company Derives Greater Income from By-Products than Gas Distribution

10% Dividend Paid—Distribution of Gas Increased 27% in Six-Month Period

The Nagoya (Japan) Gas Company reports that it manufactured in the six months' period from December, 1918, to May, 1919, 372,724,800 cu. ft. of gas, consuming 45,375,636 kilns of coal for the purpose. The distribution of gas shows an increase of 27 per cent compared with that in the previous term and 16 per cent compared with that in the same period of last year.

The total income of this half year has amounted to 1,436,287.367 yen, that is, 661,836.390 yen from gas supply, 696,961.874 yen from by-products and 77,489.103 yen from miscellaneous sources against the total expenditure of 1,213,965.204 yen.

	End of This Half Year.	End of Last Term.	End of Term Before Last.
Number of consumers for light and heat ..	24,752	24,817	24,585
Number of consumers for motive power ...	215	194	185
Total	24,967	25,011	24,774
Number of cocks for lights	85,275	86,295	86,903
Number of cocks for heats	50,400	49,960	48,230
Total	135,675	136,255	135,133
Number of engines	215	195	186
Horsepower	1,463	1,364	1,305

Works.—During the term, gas pipes and meters have been installed as follows:

Increase or decrease	at the end of the term
(+) 53,426 ken	164,549.64 ken
(—) 13,340 ft.	1,521,032 ft.
(—) 13,669 ft.	3,718,945 ft.
(—) 44	24,967

6,205,550 yen that is the payment to the Nagoya City, the balance was disposed of as follows:

	Yen.
Legal fund	12,000,000
Special fund	10,000,000
Bonus	8,900,000
Dividend (10 per cent per annum	187,000,000
Carried forward to next term	27,546,995

P. S. C. Fixes Rate Contested

The New York Public Service Commission has rendered its decision in the matter of the contest as raised by patrons against the rates as charged for gas by the Bath (N. Y.) Gas Company. The decision fixes the rate not in excess of $2 per 1,000 cu. ft., with 15 cents per 1,000 allowed for payment of bills within a prescribed time, and allows a service charge of fifty cents per month additional. This new schedule will become effective Jan. 1.

The present rate is $2.50 per 1,000 cu. ft., no service charge, and 10 per cent allowed as a discount for prompt payment of bills. The new ruling will not materially change the rates. The Public Service Commission reviews the gas company's inventory of its property, and allows a return on an investment of approximately $72,000, whereas the company sought a return on an investment of $152,000.

Governor Coolidge Honors Ex-Official of G. & E. Commission

Governor Coolidge has extended an informal letter of thanks of the Commonwealth of Massachusetts to General Morris Schaff, who is retiring from the Board of Gas & Electric Light Commissioners, for his services to the State. General Schaff is a veteran of the Civil War. He will receive from the Commonwealth of Massachusetts half his previous salary.

BOSTON CONSOLIDATED GAS COMPANY output for November was 577,678,000 cu. ft., an increase of 8 per cent over last year.

West Virginia Commission Action Will Be Contested

Youngstown will not be affected immediately by the order of the West Virginia Public Utilities Commission to the Hope Natural Gas Company to supply 2,000,000 ft. of gas to the West Virginia Traction & Electric Company, Manager Charles E. Gallagher, of the East Ohio Gas Company, announced.

An injunction will undoubtedly be asked against the commission, and granted, Mr. Gallagher said, just as has been the case with other orders of the commission diverting the gas to West Virginia companies' lines. The entire matter is up before the United States Supreme Court as to constitutionality of the Steptoe bill which gives the West Virginia commission the power to divert gas from lines feeding other States to West Virginia, and a decision has been expected for the past month.

The action was brought jointly by Pennsylvania and Ohio and will settle all orders of the commission which have been issued or may be issued.

There is no danger of immediate shortage of gas," said Mr. Gallagher. "We buy our gas from the Hope company which has been ordered by the commission previously to supply gas to various distributing companies in Morgantown, W. Va., and the glass works there, the Parkersburg (W. Va.) Gas & Heat Company and others.

"If the decision of the Supreme Court is against us and upholds the constitutionality of the law, we are going to be in a very serious position indeed. At present, though, an injunction will be secured in this case just as it has in the others. The decision may be expected very soon.

Western States Gas & Electric Earnings

H. M. Byllesby & Co. report the following earnings of Western States Gas & Electric Company for the month of October and the year ended Oct. 31, compared with the corresponding periods of last year:

October—	1919	Increase
Gross earnings .	$155,726	$27,053
Net earnings ..	53,453	9,413
Year ended Oct. 31—		
Gross earnings .	$1,839,992	$250,660
Net earnings ..	760,187	135,188

October Earnings of Dallas Gas Company

The total net earnings of the Dallas (Texas) Gas Company for the month of October was at the rate of 3.77 per cent per annum return on valuation, according to the report of Grover C. Bland, chief accountant to the Supervisor of Texas Public Utilities. Other points in the report are:

The total gas sales amounted to $83,978.80; the proportion paid the Lone Star Gas Company was $56,806.72, leaving $27,172.08, as the Dallas Gas Company's portion of the gas sales. The operating expenses were $18,289.83 and the net earnings from operations were $8,882.25, which, with non-operating revenue of $146.40, made the total net earnings $9,028.65. This is a decrease of $3,947.29 in comparison with the net earnings of October of last year. The franchise permits the company to withdraw a rate of return of 8 per cent if earned.

The total gas sold last month was 315,029,000 cu. ft., a decrease of 56,658,000 cu. ft. over the corresponding month of last year. The decrease in the boiler gas consumption was approximately 84,000,000 cu. ft., and the increase in domestic consumption approximately 28,000,000 cu. ft.

Gas Conservation Officer Closes Gas Well

A gas conservation officer of the Oklahoma Corporation Commission closed a gas well of the Lone Star Gas Company in the Walter field, of Oklahoma.

The well was closed, according to A. L. Walker, chairman of the corporation commission, because the company was alleged to be violating the conservation law of the State of Oklahoma.

"The Oklahoma law provides that not more than 25 per cent of the production may be taken," Walker said. "It was found that in this case the well was wide open, and about 65 per cent of the production was being taken. The well has a production of about 7,500,000 cu. ft.

"The well was closed for no other reason than for the purpose of conserving gas. If Texas cities want to get Oklahoma gas they must comply with our laws."

The Lone Star Gas Company serves Forth Worth, Dallas, Gainesville and other cities of northern Texas.

Massachusetts Commission Reports on Legislation Prohibiting Gas Holders

The Massachusetts Board of Gas and Electric Light Commissioners has made a special report in which it expressed the opinion that it would be inexpedient to legislate to prohibit the maintainance of gas holders within 100 rods of any dwelling house in Boston, Mass. The question was submitted to the board in an effort to abolish all such structures in Boston.

The commission's report in part follows:

"The gas holders now standing within the limits of the city of Boston, and particularly the north end holder, are lawful structures. A gas holder properly designed, constructed and operated is not per se a menace to the public safety and health even though located in a thickly settled community such as the north end. The laws now in force requiring permits and prescribing suitable safeguards for the structural safety of gas holders hereafter erected are ample. The use to which a holder is put is such as to involve little likelihood of developing structural weakness and possible danger to the public safety or health.

"So far as gas holders in use may become a nuisance or a menace to the public health, the board of health has full power to deal with the situation, and, in addition, any party injured has his remedy at law for damages or in equity to enjoin the nuisance. A gas company cannot be deprived without compensation of the beneficial use of a gas holder merely on aesthetic grounds or for the improvement of the neighborhood in which it stands."

New Company Will Develop Gas Lands in Illinois and Missouri

Articles of incorporation of the Nabene Oil & Gas Company have been filed with the Secretary of State of Missouri. The incorporators are: Jesse L. England, 34,000 shares; George W. McFadden and W. V. Delahunt, 33,000 shares each. The company will develop oil and gas properties in Illinois and Missouri and now owns two producing gas wells in Southern Illinois. The capital stock, $100,000 paid up, is $125,000.

Northern Illinois Company Selling Stock to Its Employees and Customers on Installment

Announcement has just been made by the Public Service Corporation of Northern Illinois that it intends to sell a block of its preferred stock to its customers and employees in the territory through the agency of the necessary number of its own employees formed into an organization for that purpose.

It is stated that the unit of the organization will be a team comprising as many working under the direction of a captain assisted by one or more lieutenants. In some of the divisions it may be that more than one team will be created.

The stock will be sold on installment terms, payment to be made $5 down and the balance at the rate of $5 a month. The buyer will be charged interest on the deferred payments, but during the period of the installment payments the dividends paid on it by the company will be credited to the buyer's stock and as these are at the rate of 6 per cent per annum they will more than offset the interest charge. Not more than five shares will be sold to any one person.

Boston Consolidated Petitions Rate Increase

Increase in the standard price of gas in the city of Boston is asked for by the Boston Consolidated Gas Company in a petition filed with the Public Utilities Commission.

The standard price of gas under the sliding scale act at present is $1 per 1,000 cu. ft. Under that price the company is allowed to declare a 6 per cent dividend. In order to increase its dividend 1 per cent the company must reduce the price of gas 5 cents per 1,000. If the price of gas goes 5 cents per 1,000 above the standard rate, the dividend of the company must be reduced 1 per cent.

The petition of the company for an increase in the standard price does not affect the price to the consumer. In its petition, the company did not stipulate how much it desires to increase the standard price. In the original sliding scale act, the standard price was 90 cents, but that has been increased once to the present figure of $1.

Pacific Gas & Electric to Become Leading Power Company in U. S.

An agreement upon a lease for fifteen years of the plants and facilities of the Sierra & San Francisco Power Company to the Pacific Gas & Electric Company, of San Francisco, Cal., was announced by attorneys of the former concern, and later confirmed by President John A. Britton of the latter company. The lease, if application for it is approved by the California Railroad Commission, will take effect probably about Jan. 1, 1920, Mr. Britton said. The Sierra Company supplies the United Railroads of San Francisco with its electricity. The lease if consummated will eventually make the Pacific Gas & Electric the leading power concern in the country.

Missouri P. S. C. Petitioned to Restore Pre-War Strength

City Counselor Daues, of St. Louis, has announced that he will file a petition with the Missouri Public Service Commission for an order restoring the pre-war strength of gas. Before the war the required strength was 601 B.t.u. per cu. ft. In October, 1915, an order was issued authorizing the reduction of the strength of the gas to 570 units as a war conservation measure, so that the Government might obtain toluol.

Counselor Daues said the question of asking for restoration of pre-war strength had been discussed in his office and the conclusion had been reached that the public necessity for reduced strength had ceased. No action has been taken as yet, though it has been urged by a St. Louis evening paper, which has published a number of complaints from consumers, saying that their gas bills have been going up and the quality of the gas has been going down.

Reports made to Director of Public Utilities Hooke of the daily gas tests made by the municipal test laboratory show that though the quality of the gas is lower than it was in October, 1915, it is higher than is required by the State Public Service Commission. For the first twenty-four days of November, 1919, the average strength was 599; for October, 596; for August, 596; for July, 597, and for June, 600. In October, 1916, the average was 623.

Commission Dismisses City's Case Against Company's Rate

The Massachusetts State Gas and Electric Light Commission has dismissed the case of the city of Brockton, protesting against the price of gas as charged by the Brockton Gas Light Company. In its report, the commission finds, without reaching or stating any definite conclusion which is final so far as the price charged is concerned, the board is satisfied the present price of gas in Brockton is not excessive.

The protest made by the City of Brockton was filed with the commission Aug. 1, 1917, when the price of gas was increased from $1.05 to $1.15. The price of $1.05 per 1,000 cu. ft. was effective in Brockton, whereas the price in all Massachusetts towns supplied by the same company, including Bridgewater, East Bridgewater, Randolph, West Bridgewater and Holbrook was $1.20, in Stoughton $1.30 and Canton $1.40.

When the increase was put into effect the City of Brockton felt the cause was the extension of the service into the surrounding towns and for that reason felt this city should not be forced to pay for the increased cost.

Since Jan. 1, 1918, the company has paid no dividends, it was brought out in the hearings, which lasted many months. Further in its finding the commission states it is satisfied the company will reduce the price of gas just as soon as conditions warrant.

The finding is signed by Alonzo R. Weed, chairman. Since the case was begun the company twice increased the price of gas because of the marked increase in the cost of material and labor.

Provincial Company Refuses to Extend Lines

No new service lines will be installed in the city of Niagara Falls by the Provincial Natural Gas Company. Because of the scarcity of natural gas no new consumers will be added, it is reported by the management. Meters will be placed on all houses already connected and which have not been metered in the past.

Fire Causes $5,000 Damage to Cape May Plant

The Cape May (N. J.) Illuminating Company's plant has been partially destroyed by fire. The fire was caused by oil igniting in the engine room, and the blaze spread to other parts of the building. But for the efficient work of the Cape May Fire Department, assisted by the firefighters from the coastal air station, the flames would have ignited the big gas tanks, which are only twenty feet from the engine house.

The gas plant is directly adjoining the grounds of the Cape May Golf Club. The damage is said to be around $5,000.

The people of the city have been urging the New Jersey Utility Commission to order the Cape May Illuminating Company to erect a better gas plant. Since the fire occurred the city commissioners have gone to Trenton to again put their petition before the State commission.

Supreme Court Rules Company Does Not Pay Entire Investigation Cost

The opinion of Judge Ernest Moore in ruling that the Columbia Railway, Gas & Electric Company must pay all the expenses of the recent gas rate investigation in Columbia, S. C., as made by the South Carolina Public Service Commission, was reversed by the Supreme Court in an opinion handed down, and under the court's ruling the company pays only the per diem of the members of the commission, which amounts to $834.07. For the $2,200 spent for other phases of the investigation the company is not liable, according to the court.

The $2,200 which the court says the railway company does not have to pay was spent for pay of stenographers and clerks, stamps, telephone and telegraph bills, serving subpoenas on witnesses, services of an expert firm of accountants of New York, employed to audit the company's books, the expenses incurred by the accountants and the per diem of one of the accountants in coming to Columbia to testify before the commission.

STANDARD GAS & ELECTRIC COMPANY has declared the regular quarterly dividend of 2 per cent on the preferred stock of the company, payable Dec. 15 to stockholders of record Nov. 30, 1919.

Drastic Gas Distribution Regulations in Oklahoma During Coal Famine

Strict enforcement of drastic regulations covering distribution of gas, which may mean the elimination of the supply entirely for so-called non-essentials, may be next resorted to by the Oklahoma Corporation Commission if the present coal famine is not relieved soon, it was announced by Campbell Russell, corporation commissioner.

"We have no jurisdiction over the use of coal for fuel purposes, but we do have complete authority over gas distribution and we plan to exercise that authority if such action is deemed necessary during the existing crisis," he said.

Mr. Russell said that if the regulations are prescribed they probably will shut off the use of natural gas for all purposes, except domestic use. This means that scores of industries, now relying upon gas for fuel, must make arrangements for the use of fuel oil, or close down entirely, for there is no coal on hand with which to operate.

It was generally believed at the capitol this morning that there will be further extensions of Federal supervision over coal distribution, and that finally it will become a matter entirely of Federal jurisdiction and control.

"The Oklahoma Corporation Commission stands ready to render every assistance within its power to carrying out any rules and regulations promulgated by the Federal Government to conserve fuel supplies of all kinds," said Mr. Russell.

With temperatures reported to be gradually descending in many sections of the State of Oklahoma, additional reports of coal shortages and threatened suffering have reached John A. Whitehurst, president of the State Council of Defense. Some places reported they have been without coal for weeks.

Gas Customers Increasing in Stockton, Cal.

There has been an increase of 800 gas customers in Stockton, Cal., during the past twelve months, bringing the total gas customers served by the Western States Gas & Electric Company, in Stockton, up to 9,974. The company has begun laying a new high pressure main to provide for the growth of the gas business.

Important Questions Will Be Taken Up at Illinois Association Meeting

Plans are being formulated for the biggest and most important meeting ever held by the Illinois Gas Association. At a special meeting of the directors of the association in Chicago it was decided to begin work immediately in view of the numerous important questions that will be taken up for action.

An outstanding feature of this annual meeting will be a big manufacturing exhibit. It is expected that the number of makers of gas appliances taking part in the meeting will be the largest in the association's history. Large space will be taken for this purpose at the Hotel Sherman, where the meetings will also be held.

It was stated at the directors' meeting that the association now has a membership of more than five hundred. Probably an amendment to the by-laws will be adopted proving for company membership. The fee charged for these it is proposed shall be 1-25,000 part of the particular company's gross receipts from the sale of gas. This, it is argued, will work out an equitable amount for each company. The purpose of this policy of enlarging the membership is to provide the association more income.

Before adjourning the directors prepared the following tentative list of speakers for the meeting, the list to be sent to all members with the announcement of the general plans for the meeting:

Friendly Relations with the Public, B. J. Mullaney, Chicago.

Central Market for By-Products Disposal, H. B. Coho, New York.

House Heating by Gas, P. M. Spies, Chicago.

Quantity Consumption and Its Effect on Customers' Rate, S. B. Cushing, Chicago.

Utility Accounting in Illinois, W. J. Achelpohl, Peoria.

Appraisals and Rate of Return for Utilities, W. J. Hagenah, Chicago.

Illinois Coal for Coal Gas Production, S. E. Nims, Rockford.

Recent Developments in Industrial Uses for Gas, J. H. Gumz, Chicago.

Appliances Sales, J. E. Davies, Chicago.

Gas Purification, W. A. Dunkley, Urbana.

St. Louis Coal Service Bureau Protests Against Coke Prices

A protest of the Coal Service Bureau of St. Louis, an organization of thirty-eight retail coal dealers, has caused the M. W. Warren Coke Company of St. Louis to reconsider its intention to charge an advance of $1 a ton on its coke, which it had announced would be effective Dec. 3. The Warren Company controls practically all the coke marketed here, manufacturing a great deal of its own coke and also disposing of the by-product coke produced by the Laclede Gas Light Company.

The coal dealers called attention of the Southwestern Regional Coal Committee to the fact that coke was advanced 75 cents a ton on Nov. 1, and that another advance would be detrimental to the Government's desire to combat the coal strike in every way and to economize the cost of living.

Parker H. Woods, vice-president of the Warren Company, declared that he had convinced the Consolidated Coal Company, for which the Warren company is distributor, of the undesirability of a price advance. He said the company had been put to added expense in storing the coke which is now being marketed.

Changes in Staff of Brockton Company

The duties of assistant general manager of the Brockton (Mass.) Gas Light Company, which office was formerly held by John B. Anderson, resigned, have been divided among four officials of the company.

A. A. Wilbur, assistant treasurer of the corporation, has been appointed to take charge of the commercial department, an extension of his present duties. R. H. Sheldon, industrial engineer, becomes head of the shop department and general superintendent, under the new changes. Oliver W. Adams has been made superintendent of the power department works.

George A. Priest, general manager, made the new appointments. Mr. Priest will also shoulder part of the work done by Mr. Anderson, taking over part of the detail work with the public.

Mr. Anderson has entered his new business venture in Worcester, a retail store dealing in gas appliances.

Worcester Gas Light Elects New President

Louis H. Buckley, assistant general manager of the United States Envelope Company, has been elected president of the Worcester (Mass.) Gas Light Company to succeed Willard B. Osborne, resigned.

Regional Coal Committee Regulates Gas Consumption in St. Louis

Regulations governing the use of fuel in St. Louis and the Southwestern District, which were promulgated Dec. 3 by the Southwestern Regional Coal Committee, have the effect of cutting down the use of gas at least 25 per cent, according to the estimate of P. H. Greenlaw, head of the committee. In reply to a question, Mr. Greenlaw said adequate preparations had been made to see that the new regulations are enforced. He would not say, however, along what lines the enforcement will be carried out.

Mr. Greenlaw said there is no cause for nervousness over the situation of the gas supply. It is imperative that general conservation be practised, and in the event this is done no alarm need be felt.

The Southwestern Regional Coal Committee held a meeting which was attended only by members of the committee, and two outsiders, William H. Whitton, of the Laclede Gas Light Company, and M. L. Wilkinson, of the Associated Retailers. It was at this meeting that the restrictions imposed on gas consumers were decided upon and they came largely on the recommendation of Mr. Whitton.

The regulation dealing with gas consumption was as follows:

"Gas for cooking and heating must be economized and fires in gas grates must be eliminated where other heat is obtainable."

In line with this conservation of gas is the action of the Laclede Gas Light Company in ceasing to light the rows of gas lamps, the finest in St. Louis, which it maintains on the sidewalk in front and at the side of its office building. These lights have not been lit since the need for fuel in St. Louis has become dire. Though the company uses anthracite for the manufacture of its gas, the company officials feel that the time may come soon when the public will be in need of anthracite, due to the inability to get bituminous, and at that time if there is a large supply on hand some of it may be used to relieve needy householders.

Thomas Wheelwright Expresses Confidence in New Virginia Commission

The new public utilities commission recently appointed in the State of Virginia have just made a detailed inspection of the gas plant and the gas system of the Virginia Railway & Power Company of Norfolk, Va.

This completes the preliminary inspection of physical properties. During the coming week it is probable that the commission will take up executive detail and make an inspection and study of books and other data related to the administration of the various departments.

While Chairman Wright, of the commission, has made no announcement of plans for the commission, it is understood that before any recommendations are made it is the purpose of the commissioners to make a careful and detailed study of all features of operation, equipment and possible betterments in the various services.

Additional cars, rerouting, skip-stop regulations and improved gas service in some sections probably will be included in the first recommendations to be made.

Thomas Wheelwright, president of the company, has expressed his confidence in the new public utilities commission and declared that it is his belief that much good can be accomplished through the co-operation of the commission with the company and the city.

Indiana Fuel & Light Granted Increase

The Indiana Public Service Commission has advised local officials that an increase in the rates charged by the Indiana Fuel & Light Company has been allowed, although considerably less than was petitioned for. The company has been charging $1.50 for 1,000 cu. ft. They petitioned for an increase to $2.25 for 1,000 cu. ft., but were granted an increase of only 25 cents, or $1.75 for 1,000 cu. ft. This proportion holds good for the various units used. This increase will apply as well to the cities of Auburn and Garrett, Ind.

C. E. Page—New Manager of Worcester Company Outlines Company's Future Policy

The election of Charles B. Tenney, of Charles B. Tenney & Co., Boston, Mass., as a director of the Worcester (Mass.) Gas Light Company, is another move on the part of the directors toward establishing confidence in the company not only among the consumers, but among those financially interested.

The Tenney management of the company has made many changes, and C. E. Page, the new manager, is losing no time in making known to the people of Worcester that the policy of the Tenney Company is to establish friendly and cordial relations with the public.

The attitude of the management of the company is summed up by Mr. Page in this manner: "So far as the public is concerned, we have taken down the bars, and everything we are doing, or shall do in the future, the public is welcome to know. Courtesy and a courteous treatment of the public is the slogan of our employees.

"Our company always has maintained a policy of production to win in their enterprises, and this policy will be carried out in Worcester. To this end we have adopted a new slogan, 'Double our output in three years.' This slogan has gone down through all of the department heads, and we confidently expect to make the slogan good.

"It is our purpose to work on the word service, not as a word, but as a purpose. We expect to establish such relations with our customers that it will be considered a pleasure and not a duty to do business with us.

"It will be our policy to meet anyone any time on any subject more than half-way.

"It is a bit trite to say good-will is an asset, but with the gas company good-will, based on public confidence, is not looked on as an asset, but as a matter paramount to the success of the company. If the public cannot feel we are reliable in all respects, we have fallen down in a large account of our stewardship, but we can establish mutual confidence, the success of the company, satisfaction to the public is assured. The line of the organization of the company being departmentalized. The department heads not only responsible for

their department, but they also act as an advisory committee. In this way initiative is not discounted, but rather a premium is put on it."

Mr. Page states the company will take the initiative in letting the public know what is doing. To this end they will use the newspapers and also will issue pamphlets telling of such activities of the company as may be of interest to customers, and these will be sent out with the monthly statements.

Personal Notes

JOHN C. REED, of J. C. Reed & Co., has been elected president of the Pleasantville Gas Company, which serves suburbs of Atlantic City between Absecon and Somers Point, N. J.

RUSSELL W. STOVEL, recently lieutenant-colonel in the Engineer Corps of the U. S. Army, has been appointed consulting engineer for Westinghouse, Church, Kerr & Co., Inc., 37 Wall Street, New York City.

GEORGE SPENARD, foreman of the gas department of Division K of the Public Service Company of Northern Illinois, has just resigned to enter the gas fitting business for himself, and he has been succeeded by C. C. Desmond.

G. F. SCHWARTZ, president of the Van Zandt Gas Appliance Company, who is a lieutenant-commander in the United States Naval Reserve Force, has applied to Washington for permission to organize a naval post of the American Legion in St. Louis to be composed of nothing but men who have served in the navy. There are approximately 3,000 of these men in the city and it is expected that the post will be the largest in the State.

JOHN B. ANDERSON, who recently resigned as assistant manager of the Brockton (Mass.) Gas Light Company, was presented with a substantial purse of gold by members of the Brockton Company's Employees' Benefit Association at a reception given in honor of him.

Construction Notes

Montgomery Company Making Improvements to Meet Increased Demand

The city commissioners of Montgomery, Ala., have been investigating for some weeks the gas situation in the city of Montgomery, Ala., and found that the quality and quantity of the gas served by the Montgomery Light & Water Power Company, is of the very best, and that any deficiency in service was due solely to lack of pressure which was caused by the rapid growth of the city of Montgomery and increased demand for gas. This, in addition to the fact, that during the period of the war appliances could not be secured to regulate this pressure. The company, several months ago, ordered pressure governors which are being delivered as fast as they can be manufactured and are being installed immediately upon receipts. Also other extensive improvements are now under way, the gas company maintaining a force of more than twenty-five men constantly at work.

Connecticut Company Will Lay 4 Miles of Main

The Connecticut Power Company, of New London, Conn., has arranged to lay a new main through the city reaching to the beach to improve its service in the rapidly growing city.

An entirely new 4-in. high pressure main, welded so as to prevent leaks, and thus forming practically a single tube, is to be laid from the company's gas house to Ocean Beach.

The new main will be 20,000 ft. in length, and will parallel the present 8-in. low pressure main, and will be laid on the same side of the streets.

The gas which passes through the present main has a pressure of 3½ in. at the gas house, or in pounds, something like 1/9 lb. per square inch. When this gas reaches a point half way to the beach the pressure is reduced to probably about 2½ in., and at the beach the present pressure is probably something like 1 in. or practically no pressure at all.

The new high pressure main is to be so tight that a great deal of pressure may be applied, and it is proposed to put on a pressure of 10 lb. per square in. at the gas house. This gas will be shot through the new main by a compressor which will have to be installed at the gas house, and the pressure will be 90 times the pressure now applied to the present main.

Service pipes and reducers will be used to bring the pressure down to normal; a 2½-in. pressure being considered right for ordinary household uses.

It is hoped to have the construction work completed by May 1.

Improvements Approximating $30,000 Under Way at Wilmington, N. C., Plant

Raymond Hunt, general manager of the Tidewater Power Company, of Wilmington, N. C., announces that numbers of improvements by which better gas service will be provided to the population of Wilmington, N. C., which has increased by leaps and bounds within the last few months, will be begun at once.

Mr. Hunt announces that the improvements will include the installation of a new gas plant; the remodeling of the old plant, making room for new machinery which has been ordered, and a high pressure main with district governor, replacing a small main in one section of the city. The work is now under way. The cost will approximate $30,000.

Note Issue Sanctioned to Continue Construction Work

The Southern Counties Gas Company, operating in Riverside, Ventura and San Bernardino counties, received authority from the State Railroad Commission to issue $900,000 in gold notes to pay present obligations and to continue construction work. The company estimated that $950,000 would be spent in additional construction during the next twelve months.

MUSKOGEE GAS & ELECTRIC COMPANY has declared the regular quarterly dividend of 1¾ per cent on the preferred stock of the company payable Dec. 15, 1919, to stockholders of record Nov. 29, 1919.